XR-1250

SERVICE MANUAL

E Model

Model Name Using Similar Mechanism	XR-1550
Tape Transport Mechanism Type	MG-301TN-38

SPECIFICATIONS

Cassette player section

Tape track	4-track 2-channel stereo
Wow and flutter	0.2 % (WRMS)
Frequency response	50 – 13,000 Hz
Signal-to- noise ratio	50 dB

Tuner section

FM

Tuning range	87.5 – 108 MHz
Antenna terminal	External antenna connector
Intermediate frequency	10.7 MHz
Usable sensitivity	12 dBf
Selectivity	65 dB at 400 kHz
Signal-to-noise ratio	55 dB (stereo), 60 dB (mono)
Harmonic distortion at 1 kHz	1.5 % (stereo), 1.0 % (mono)
Separation	25 dB at 1 kHz
Frequency response	30 – 15,000 Hz
Capture ratio	9 dB

AM

Tuning range	AM tuning interval: 9 kHz/10 kHz switchable 522 – 1,620 kHz (at 9 kHz step) 520 – 1,720 kHz (at 10 kHz step)
Antenna terminal	External antenna connector
Intermediate frequency	450 kHz
Sensitivity	35 µV

Power amplifier section

Outputs	Speaker outputs (sure seal connectors)
Speaker impedance	4 – 8 ohms
Maximum power output	7 W × 4 (at 4 ohms) 15 W × 2 (at 4 ohms)

General

Output lead	Power antenna relay control lead
Tone controls	12 dB at 10 kHz
Power requirements	12 V DC car battery (negative ground)
Dimensions	Approx. 188 × 58 × 170 mm (w/h/d) not incl. projecting parts and controls
Mounting dimension	Approx. 182 × 53 × 165 mm (w/h/d) not incl. projecting parts and controls
Mass	Approx. 1.5 kg
Supplied accessories	Mounting hardware (1 set)

Design and specifications are subject to change without notice.

FM/AM CASSETTE CAR STEREO

SONY®

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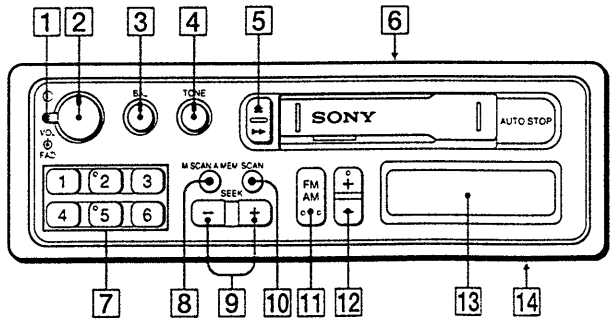
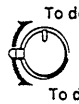
Button Locations



Refer to the pages in ● for details.

1 **FAD (fader) control**
Turn the outer knob to adjust the balance between front and rear speakers.



2 **VOL (on/off, volume) control**
Turn the inner knob to turn the unit on or off and to adjust the volume.

3 **BAL (balance) control**
Turn the knob to adjust the balance between right and left speakers.

4 **TONE control**
Turn the knob to the left for less treble.

5 **⏏ (eject)/▶▶ (fast-winding) button ❹**

6 **Frequency Select switch (located on the top of the unit)**
See "Frequency Select" in the Installation/connections manual.

7 **Preset number buttons ❻**

8 **M.SCAN/A.MEM button ❺❻**

9 **SEEK (automatic tuning) button ❹**

10 **SCAN button ❺**

11 **FM/AM (band select) button ❹❺❻**

12 **+/– button ❺**

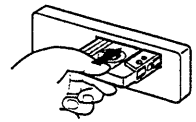
13 **Display window**

14 **OUTPUT SELECT switch (located on the top of the unit)**
See "OUTPUT SELECT Switch" in the Installation/Connections manual.

Listening to Tape Playback

1 Turn on the unit by rotating the VOL control.

2 After inserting the cassette, playback will start automatically.



Ejecting the Cassette

Press the ⏏ button all of the way (button is fully inserted) to stop playback and to eject the cassette.

Fast-winding the Tape

Press the ▶▶ button only half of the way (button is half inserted) to fast-forward the tape.

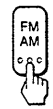
Tuning in a Station

Searching for the Stations Automatically

— Automatic Tuning

1 Turn on the unit by rotating the VOL control.

2 Select the desired band.



FM1 → FM2 → FM3 → AM1 → AM2 → FM1

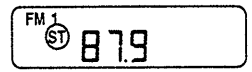
3 Press either side of the SEEK button to search for the station (automatic tuning).

For lower frequencies

For higher frequencies

The scanning stops when a station is received. Press either side of the button repeatedly until the desired station is received.

When an FM stereo program with a sufficient signal strength is tuned in,

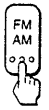


the "ST" indication will appear.

This section is extracted from instruction manual.

Tuning in by Adjusting the Frequency — Manual Tuning

1 Select the desired band.



2 Press and hold either side of the + / − button.
Release the button when the desired station is received.

For lower frequencies

For higher frequencies

PREVENTING ACCIDENTS!
When tuning in during driving, use the automatic tuning or the preset number buttons instead of the manual tuning.

Scanning for the Stations — Scan Function

1 Select the desired band.

2 Press the SCAN button.

The stations with the strongest signals will be scanned for five seconds each in order. Press the button again when the desired station is received.

Memorizing Stations

Memorizing Stations Automatically — Automatic Memory Function

This function selects from the currently received band six stations and memorizes them in order of their frequencies. If six strong stations cannot be found, it will search the band again looking for farther stations.

1 Select the desired band.

2 Use any tuning method to tune to a frequency slightly below that of the first station you want to memorize.

3 Press the M.SCAN/A.MEM button for more than two seconds.

Note
If a station you want to store has a weak signal or interference, it might not automatically be memorized.

EN EN

Cassette Player Operation/Radio Reception

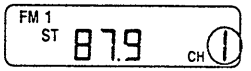
Memorizing Only the Desired Stations

1 Select the desired band.

2 Tune in the station which you wish to store on the preset number button.

3 Keep the desired preset number button (1 to 6) pressed for about two seconds until the volume briefly mutes.

The number of the pressed preset number button now appears on the display window.



Up to 6 stations on each band (FM1, FM2, FM3, AM1 and AM2) can be stored on the preset number buttons in this order of your choice. Therefore, 18 FM stations can be memorized and 12 AM stations can be memorized. If you try to store another station on the same preset number button, the previously stored station will be erased.

Receiving the Memorized Stations

1 Select the desired band.

2 Press momentarily the preset number button on which the desired station is stored.

Note
If you press the preset number button for more than two seconds, the currently received station will be memorized. To receive the previously memorized station, make sure that the preset number button is pressed only momentarily.

Checking What is Being Broadcast on the Preset Stations — Memory Scan Function

1 Select the desired band.

2 Press the M.SCAN/A.MEM button momentarily.

The memorized stations will be scanned for five seconds each in order.
(When the broadcast signal of a memorized station is too weak, it cannot be received.)

Note
Make sure that you press the M.SCAN/A.MEM button momentarily. If you press it for more than two seconds, the button will function as the A.MEM (automatic memory) button, and the memories of the currently activated preset number button and of the succeeding preset number buttons will be altered.

Maintenance

Fuse Replacement

When replacing the fuse, be sure to use one with the correct amperage which is stated on the fuse case. Never use a fuse whose amperage rating exceeds the one supplied to the unit, as this could cause a malfunction of the unit.

Warning
Use a fuse with the specified amperage.
Use of a fuse with higher amperage may cause serious damage.

Cleaning the Head and the Tape Path

Prolonged use may contaminate the tape head and the tape path. Contamination causes sound drop-outs during playback.
Clean the tape head and the tape path every two weeks to enjoy optimum hi-fi stereo sound. Use a commercially available cleaning cassette.

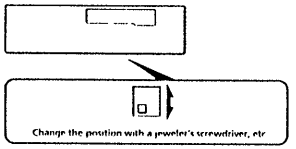
Connections

Caution

- This unit is designed for negative ground 12 V DC operation only.
- Before making connections, disconnect the ground terminal of the car battery to avoid short circuits
- Connect the **red** power input lead only after all other leads are connected. Be sure to connect it to the positive 12V power terminal which is energized when the ignition key is turned to the accessory position.
- **Run all ground wires to a common ground point.**

OUTPUT SELECT Switch

In case you connect a 4-speaker system, set the output switch on the bottom of the unit to "4ch" before you install the unit.
If you connect a 2 speaker system, set the output switch to "2ch" before installing the unit. (The switch of a new unit is factory-set to "2ch")



Frequency Select

The AM tuning interval is factory set to the 9K position. If the frequency allocation system of your country is based on 10 kHz interval, set the switch on the top of the unit to the 10K position before making connections.

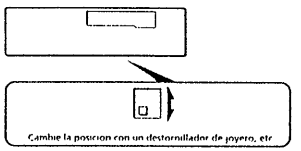
Conexiones

Precauciones

- Esta unidad ha sido diseñada para funcionar solamente con 12 V CC negativo a masa.
- Antes de realizar las conexiones, desconecte el terminal de masa de la batería del automóvil a fin de evitar cortocircuitos.
- Conecte el conductor de entrada de alimentación **rojo** solamente después de haber conectado todos los demás. Cerciórese de conectarlo a un terminal de alimentación de 12 V positivo que se energice al poner la llave de encendido en la posición para accesorios.
- **Conecte todos los terminales de puesta a masa a un punto común.**

Interruptor OUTPUT SELECT

En caso de que conecte un sistema de 4 altavoces, sitúe el interruptor de salida que se encuentra en la parte inferior de la unidad en la posición "4ch" antes de instalar la unidad.
Si conecta un sistema de 2 altavoces, sitúe el interruptor de salida en la posición "2ch" antes de instalar la unidad (el interruptor de la nueva unidad se encuentra en la posición "2ch" de fábrica)



Selector de frecuencia

El intervalo de sintonía de AM ha sido ajustado en fábrica en la posición 9 K. Si el sistema de asignación de frecuencias de su país se basa en el intervalo de 10 kHz, ponga este selector, situado en la cima de la unidad, en la posición 10 K antes de realizar las conexiones.

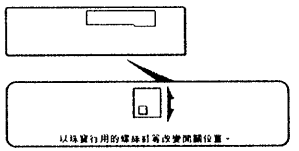
線路之連接

注意

- 本機只可使用負極接地12V直流電操作。
- 開始連接以前，請先拔卡式車電池的接地線，以防止短路。
- 紅色電源線必須在所有導線都連接完畢以後才可連接。連接時，必須把電源線連接到一當汽車點火鑰匙被轉在輔助位置時方可通電狀態的正12V電源端子。
- **請把所有接地線都連接到一共同接地點。**

輸出選擇開關

若連接4喉吼的揚聲器，請在安裝本機以前，先把本機機底的輸出選擇開關設定在"4ch"之處。
若連接2喉吼的揚聲器，則請在安裝本機以前，把輸出選擇開關設定在"2ch"之處(本機剛買來時，輸出開關都事先於廠內被設定在"2ch")。



頻率選擇開關

本裘置的AM調諧區間在出廠以前被設定在"9K"位置上。若貴地的頻率區間為10KHz，連接以前請先把本機機面的選擇開關設定在"10K"之處。

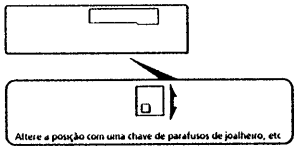
Ligações

Atenção

- Esta aparelho foi concebido para funcionar apenas com 12 V CC de ligação negativa à terra.
- Antes de efectuar as ligações, desligue o terminal terra da bateria do automóvel para evitar curto-circuitos.
- Ligue o fio **vermelho** de entrada de alimentação apenas após ter realizado as ligações de todos os outros fios. Certifique-se de o ligar ao terminal positivo de 12 V, activado quando a chave de ignição é rodada para a posição acessórios.
- **Ligue todos os fios terra num ponto comum.**

Comutador OUTPUT SELECT

Se ligar um sistema de 4 altifalantes, regule o comutador de saída, localizado na base do aparelho, para "4ch" antes de instalar o aparelho.
Se ligar um sistema de 2 altifalantes, regule o comutador de saída para "2 ch" antes de instalar o aparelho (o comutador de um aparelho novo é regulado na fábrica para "2ch").

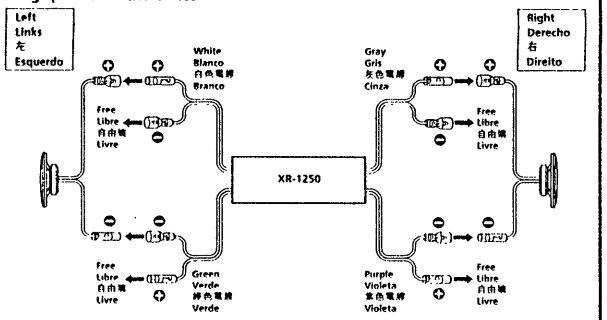


Comutador de seleccção da frequência

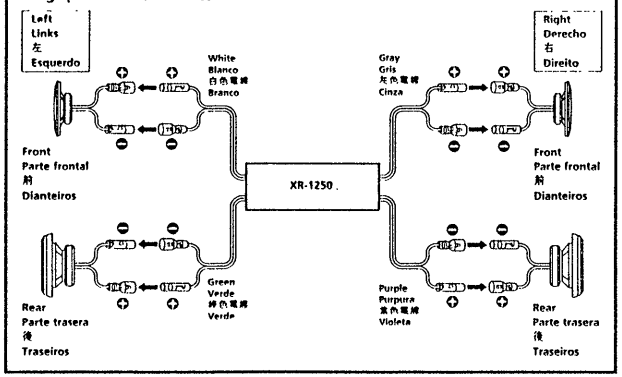
O intervalo de sintonização AM é definido na fabrica para a posição 9 K. Se o sistema de atribuição de frequências do seu país se basear num intervalo de 10 kHz, regule o comutador, situadq na cima do aparelho, para posição 10 K antes de efectuar as ligações.

Speaker Connections/Conexión de los altavoces/揚聲器之連接/Ligação dos altifalantes

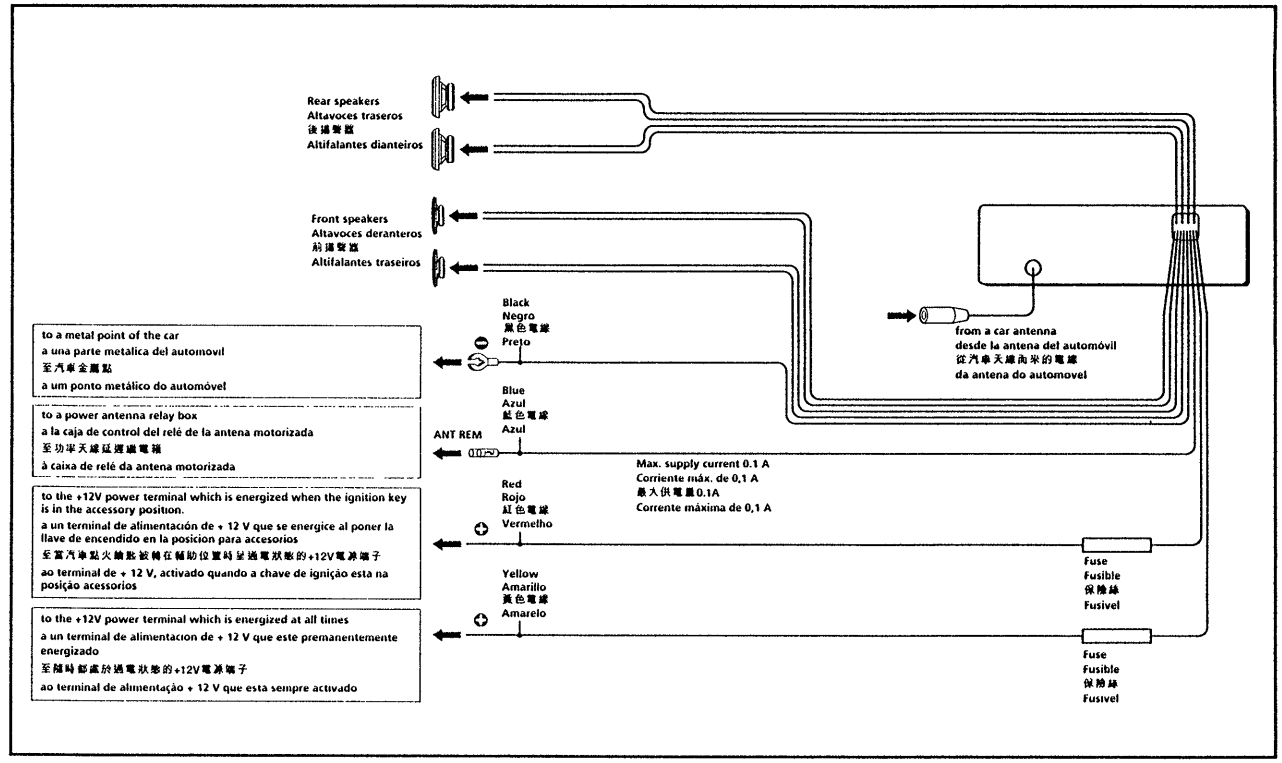
2-speaker connection/Conexión de 2 altavoces/與2啦叭揚聲器之連接/Ligação de 2 altifalantes



4-speaker connection/Conexión de 4 altavoces/與4啦叭揚聲器之連接/Ligação de 4 altifalantes



Connection Diagram/Diagrama de conexión/連接方塊圖/Diagrama de ligações



Notes on speaker connections

- *Use speakers with an impedance of 4 to 8 ohms, and with adequate power handling capacities. Otherwise, the speakers may be damaged.*
- *Do not connect the terminals of the speaker system to the car chassis, and do not connect the terminals of the right speaker with those of the left speaker.*
- *Do not connect the speakers in parallel.*
- *Do not connect any active speakers (with built-in amplifiers) to the speaker terminals of the unit. Doing so may damage the active speakers. Therefore, be sure to connect passive speakers to these terminals.*

Notes on the control leads

- *The power antenna control lead (blue) supplies 12V DC when you turn on the unit.*
- *A power antenna without relay box cannot be used with this unit.*

Notas sobre la conexión de los altavoces

- *Emplee altavoces con una impedancia de 4 a 8 ohmios, y con la capacidad máxima de potencia adecuada. De lo contrario, los altavoces podrían dañarse.*
- *No conecte los terminales del sistema de altavoces al chasis del automóvil, ni los del altavoz derecho a los del izquierdo.*
- *No intente conectar los altavoces en paralelo.*
- *No conecte altavoces activos (con amplificador incorporado) a los terminales de altavoces de la unidad. Si lo hiciese podría dañar dichos altavoces. Por lo tanto, cerciórese de conectar altavoces pasivos a estos terminales.*

Notas sobre conductores de control

- *El conductor de control de la antena motorizada (azul) suministra 12 V CC al activar la unidad.*
- *Con esta unidad no puede emplearse una antena motorizada desprovista de caja de relé.*

連接揚聲器時之注意事項

- *揚聲器請使用阻抗為4至8歐姆的揚聲器，並且有適合本裝置用的容量者，否則會損壞揚聲器。*
- *不可把揚聲器端子連接到汽車底盤，也不可把右揚聲器和右揚聲器相連接。*
- *揚聲器不可平行連接。*
- *不可把有源揚聲器(即內裝有放大器者)連接到本裝置的揚聲器插口。*

關於控制導線

- *為您接通調諧器電源時，功率天線控制導線(藍色)使會輸出12V的直流電。*
- *沒附繼電器的功率天線不能使用於本機。*

Att observera angaende högtalarnas anslutningar

- *Anslut endast högtalare vilkas impedanser varierar från 4 till 8 ohm och som har tillräckligt effekthanterande, för att skydda högtalarna mot skador.*
- *Anslut inte något av högtalarutmatgen på högtalarna till bilens underrede. Anslut inte heller utmatgen på höger högtalare till utmatgen på vänster högtalare.*
- *Anslut inte högtalarna parallellt.*
- *Anslut inte aktiva högtalare (med inbyggda slutsteg) till högtalaruttagen på bilstereon. Det kan skada de aktiva högtalarna. Var därför noga med att ansluta passiva högtalare till högtalaruttagen. Använd en guld-medelskt uvemepek e dyd för att andra omkopplarnas lägen.*

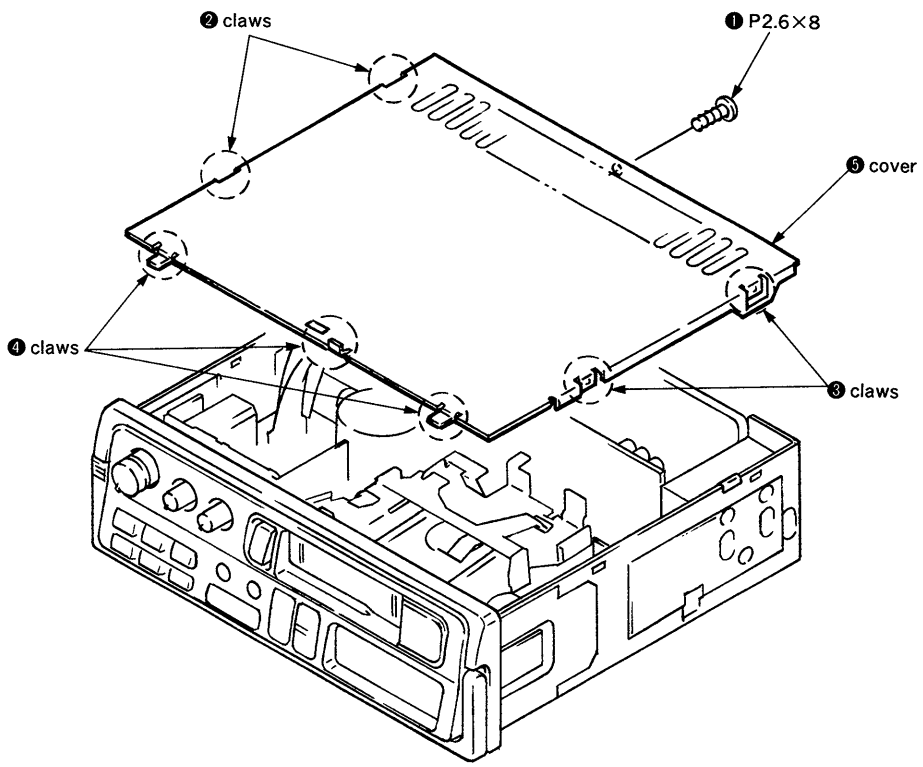
Notas sobre os fios de controlo

- *O fio controlo da antena motorizada (azul) fornece + 12 V CC quando da ligação do aparelho.*
- *Uma antena motorizada sem um relé não pode ser utilizada com este aparelho.*

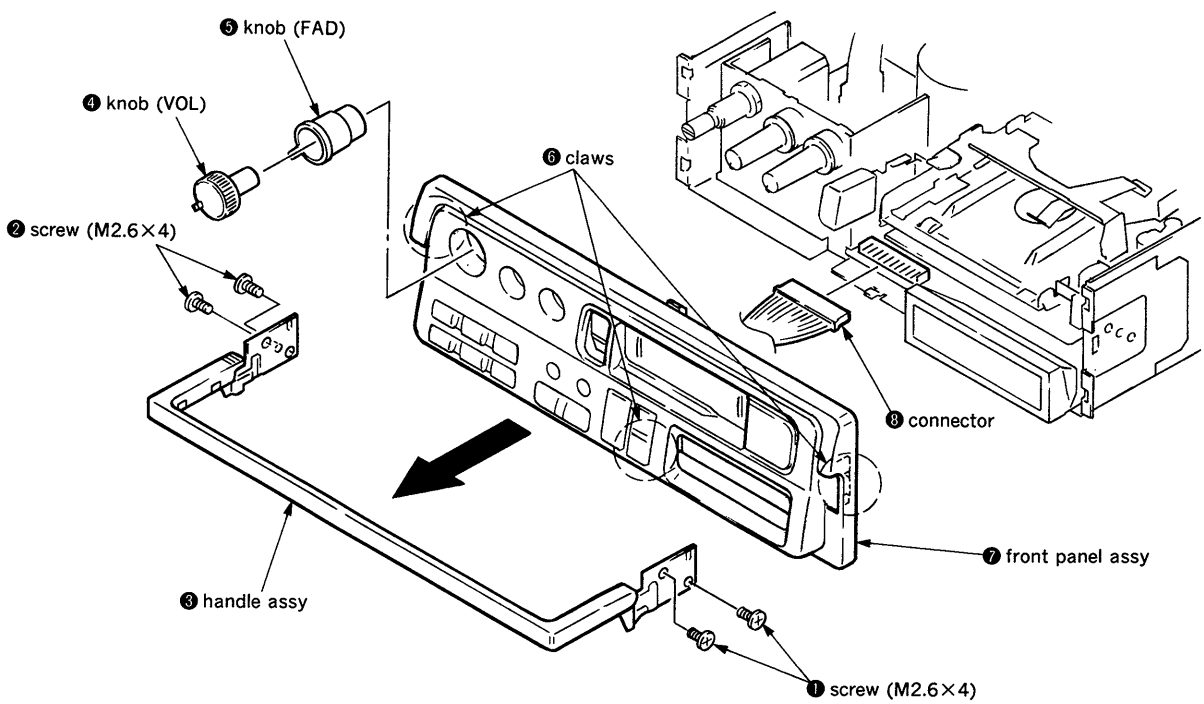
SECTION 2
DISASSEMBLY

Note : Follow the disassembly procedure in the numerical order given.

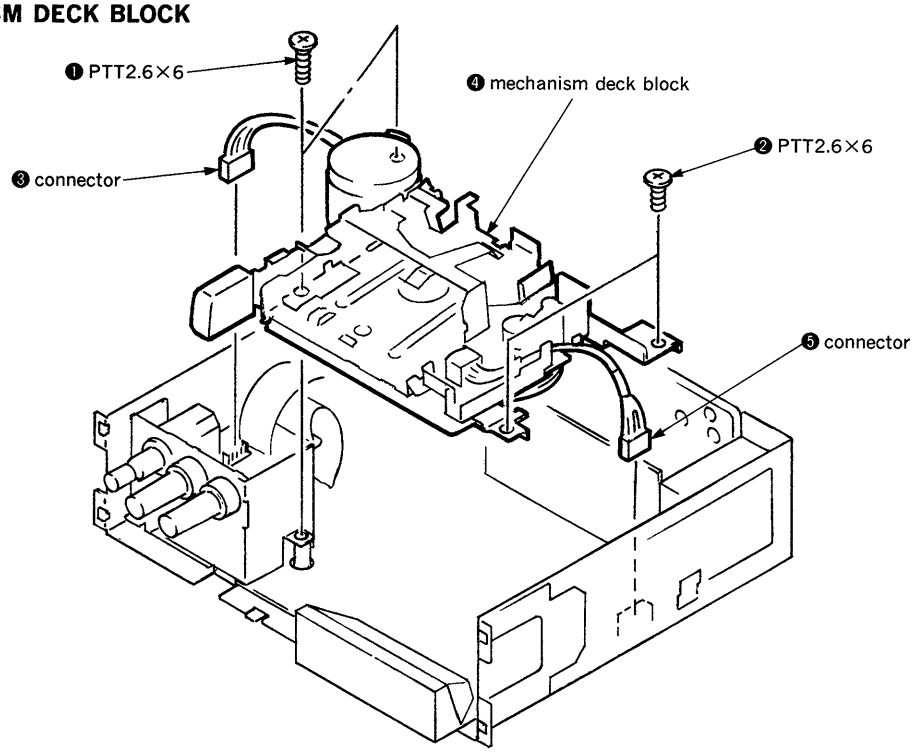
2-1. COVER



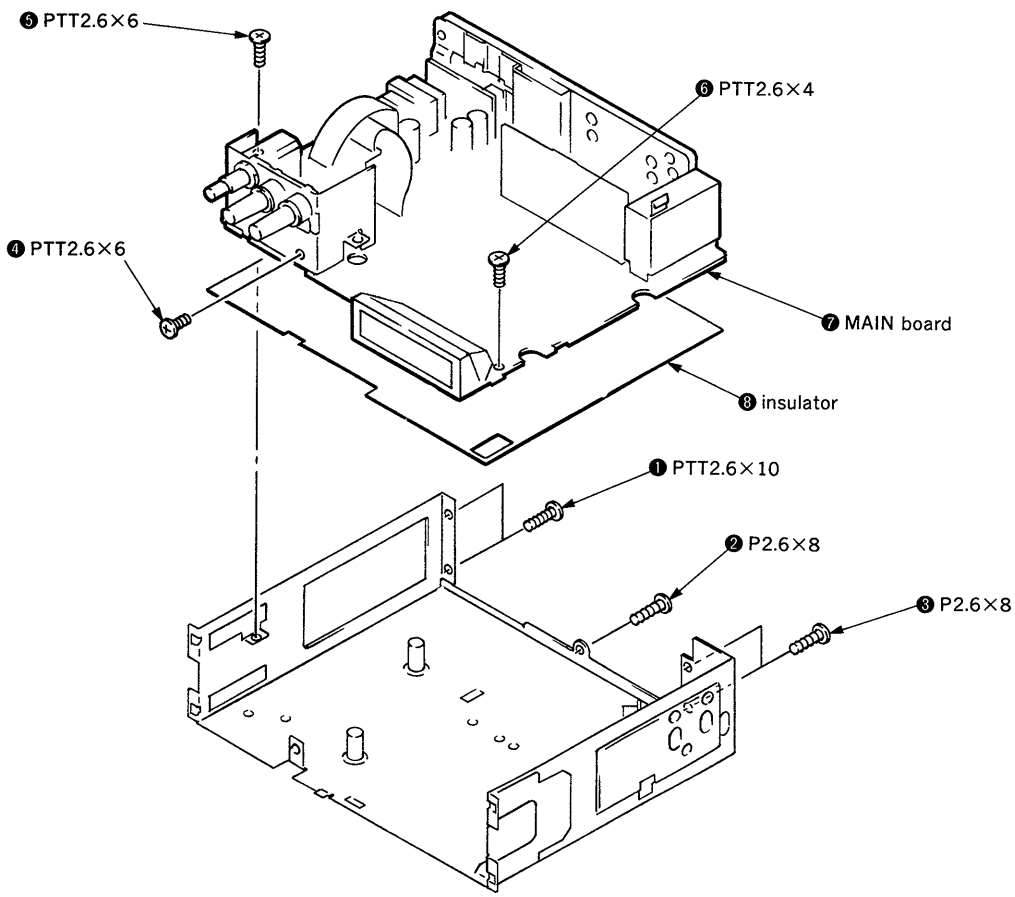
2-2. FRONT PANEL ASSY



2-3. MECHANISM DECK BLOCK



2-4. MAIN BOARD



SECTION 3
MECHANICAL ADJUSTMENTS

PRECAUTION

1. Wipe the following components with an absorbent cotton cloth moistened with alcohol before aejustment:
   PB head — Pinch roller
   Idler — Rubber belt
   Capstan
2. Demagnetize the PB head using a head demagnetizer.
3. Be careful not to use a magnetized screwdriver.
4. After the adjustment is completed, lock the adjustment parts using screws.
5. Unless otherwise specified, make adjustments at the specified voltage (14.4V).

Torque Measurement

Mode	Torque Meter	Meter Reading
FWD	CQ-102C	35—75g•cm (0.49—1.04oz•inch)
FF	CQ-201B	35—75g•cm (0.49—1.04oz•inch)

SECTION 4
ELECTRICAL ADJUSTMENTS

DECK SECTION | **0dB=0.775V**

1. The adjustments should be performed in the order given in this service manual.
2. The adjustments should be performed for both L-CH and R-CH.

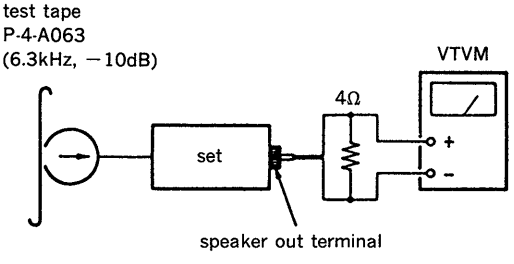
Test Tape

Type	Signal	Used for
P-4-A063	6.3kHz, −10dB	head azimuth adjustment
WS-48A	3kHz, 0dB	tape speed adjustment

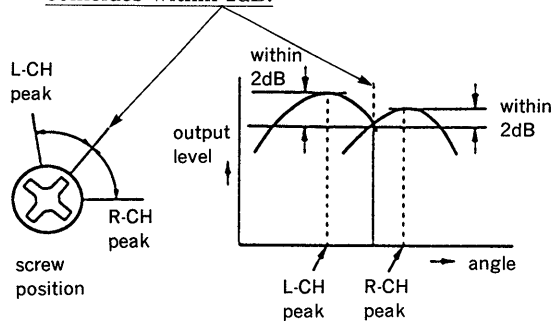
PB Head Azimuth Adjustment

Procedure:

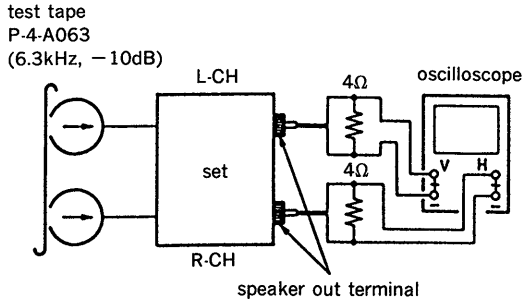
1. Mode: playback

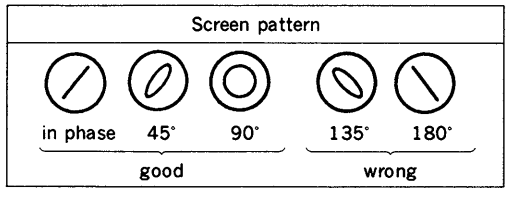


2. Turn the screw and check the output peak value. Adjust the screw so that the peak value in channels L and R coincides within 2dB.

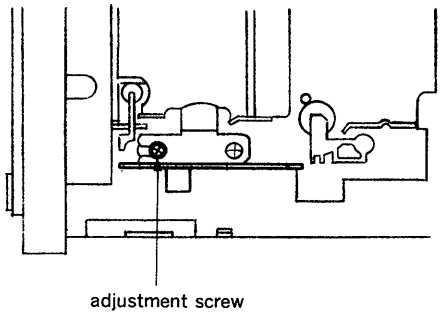


3. Check the phase in the PB mode.



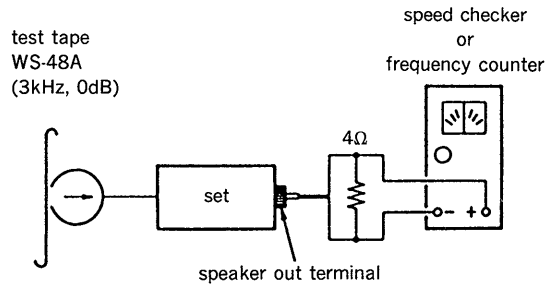


Adjustment Location:



Tape Speed Adjustment

Setting :



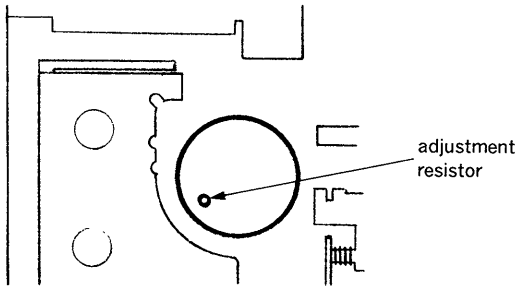
Procedure :

1. Put the set into the PB mode.
2. Adjust adjustment resistor for inside capstan motor so that the reading on the speed checker or frequency counter becomes in specification.

Specification : Constant speed

Speed checker	Frequency counter
−2 to +3%	2,940 to 3,090Hz

Adjustment Location : capstan/reel motor



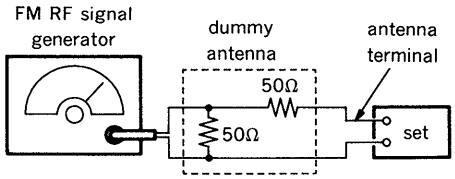
TUNER SECTION | 0dB=1μV

Cautions during repair
When the front end is defective, replace it by a new one because its internal block is difficult to repair.

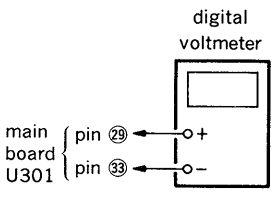
FM Detection Adjustment

Setting :

FM AM button : FM



Carrier frequency : 98.0MHz
Output level : 60dB (1mV)
Mode : mono
Modulation : no modulation



Procedure :

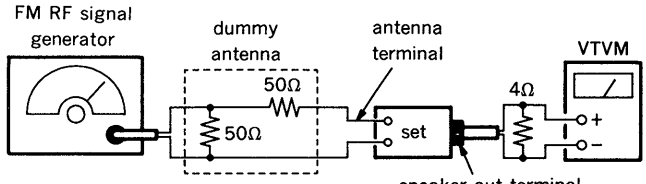
1. Connect a digital voltmeter between U301 pin ㉙ and pin ㉝ on the main board.
2. Adjust M303 so that the reading on the digital voltmeter becomes in 0±0.05V.

Adjustment Location : See page 13.

FM Stereo Separation Adjustment

Setting :

FM AM button : FM



Carrier frequency : 98.0MHz
Output level : 60dB (1mV)
Mode : stereo
Modulation : 1kHz, 75kHz deviation (100%)
(L-CH only)

Procedure :

FM stereo signal generator output channel	VTVM connection	VTVM reading (dB)
L-CH	L-CH	Ⓐ
R-CH	L-CH	Ⓑ Adjust R308 for maximum reading.

L-CH Stereo separation : Ⓐ—Ⓑ

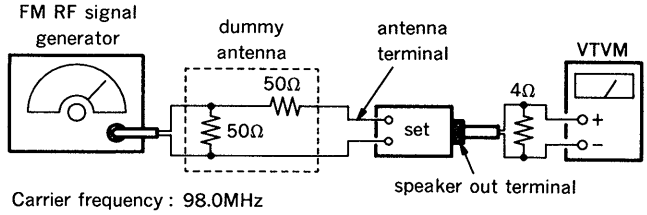
Specification : Separation more than 30dB

Adjustment Location : See page 13.

Pilot Cancellation Adjustment

Setting :

FM AM button : FM



Carrier frequency : 98.0MHz
Output level : 60dB (1mV)
Mode : mono
Modulation : pilot : 7.5kHz deviation (10%)

Procedure :

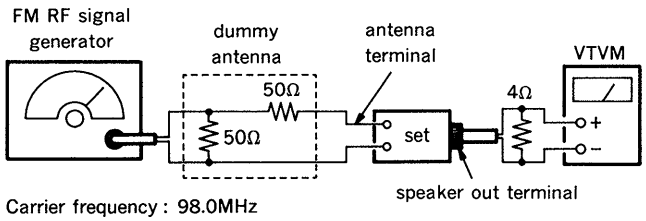
1. Adjust R306 so that the reading on the VTVM becomes in minimum and same pilot residue for both L-CH and R-CH.

Adjustment Location : See page 13.

10dB Crosstalk Adjustment

Setting :

FM AM button : FM



Carrier frequency : 98.0MHz
Output level : 40dB (0.1mV)
Mode : mono
Modulation : 7.5kHz pilot : 75kHz deviation (100%)

Procedure :

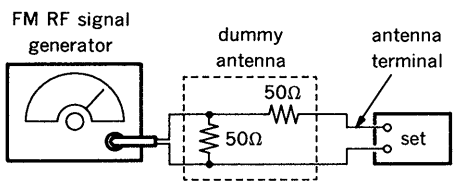
1. Adjust R300 so that the reading on the VTVM becomes in 10dB separation.

Adjustment Location : See page 13.

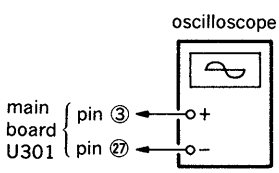
LOCAL Locking Sensitivity Adjustment

Setting :

FM AM button : FM



Carrier frequency : 98.0MHz
Output level : 42dB (125.9μV)
Mode : mono
Modulation : no modulation



Procedure :

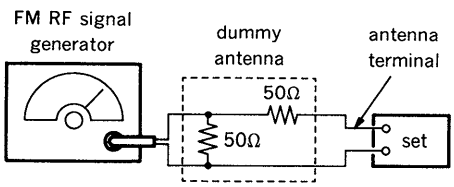
1. Connect a oscilloscope between U301 pin ③ and pin ㉗ on the main board.
2. Short the Q301 base to GND.
3. Adjust R322 so that IF signal should off, when 2dB signal is reduce.

Adjustment Location : See page 13.

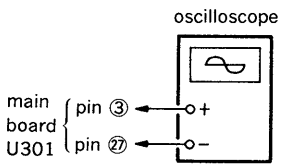
DX Locking Sensitivity Adjustment

Setting :

FM AM button : FM



Carrier frequency : 98.0MHz
Output level : 22dB (12.6μV)
Mode : mono
Modulation : no modulation



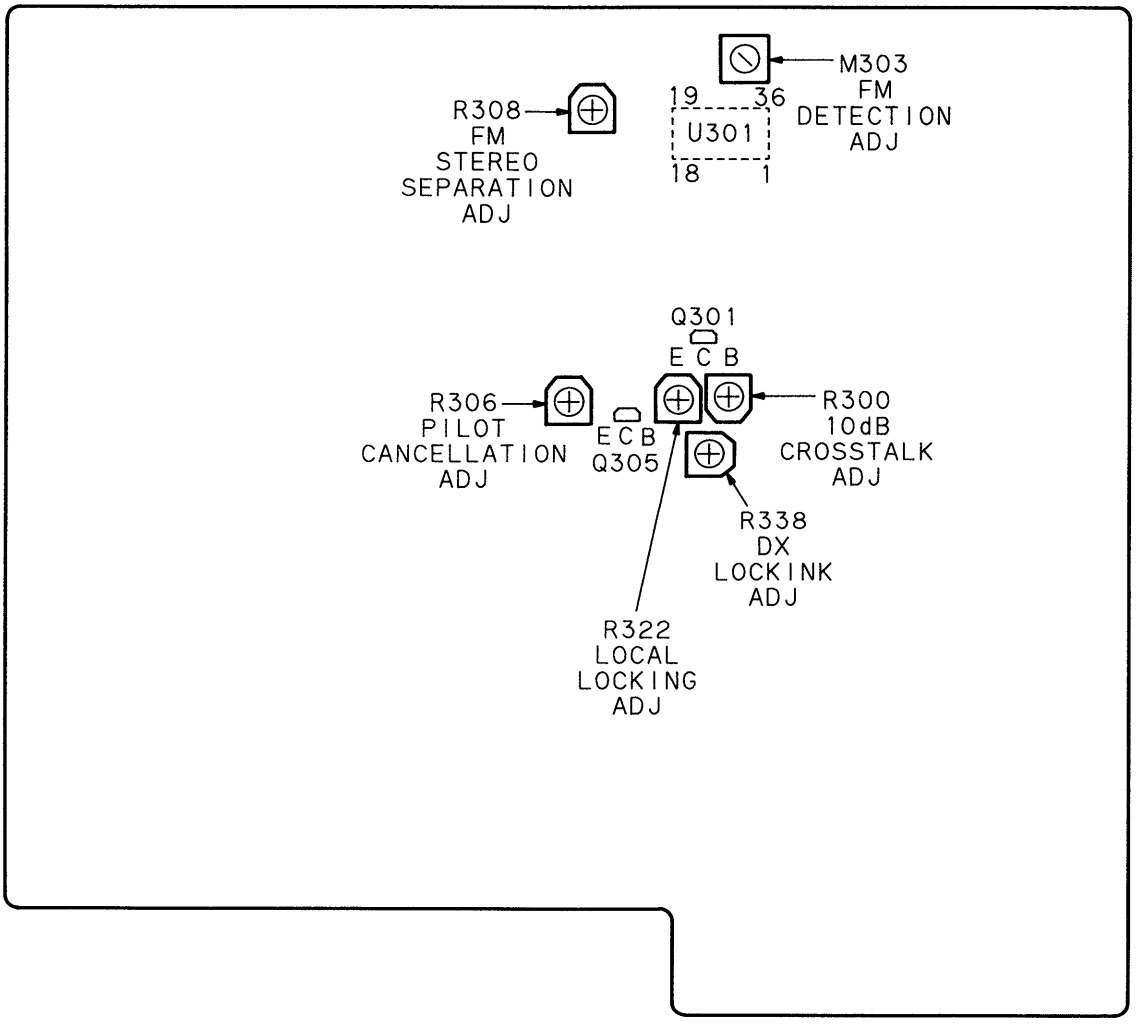
Procedure :

1. Short the Q305 base to GND.
2. Connect a oscilloscope between U301 pin ③ and pin ㉗.
3. Short the Q301 base to GND.
4. Adjust R338 so that IF signal should shut off, when 2dB signal is reduce.

Adjustment Location : See page 13.

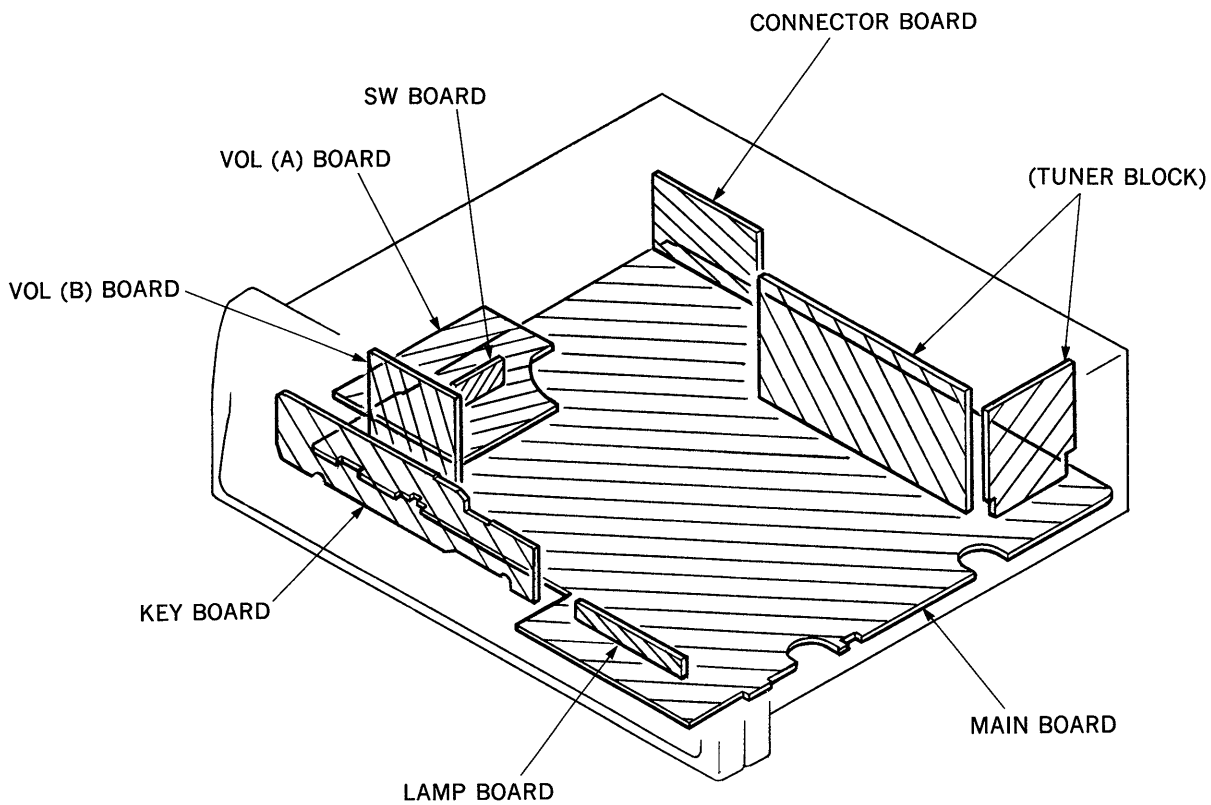
Adjustment Location

—main board (component side)—



SECTION 5
DIAGRAMS

5-1. CIRCUIT BOARDS LOCATION



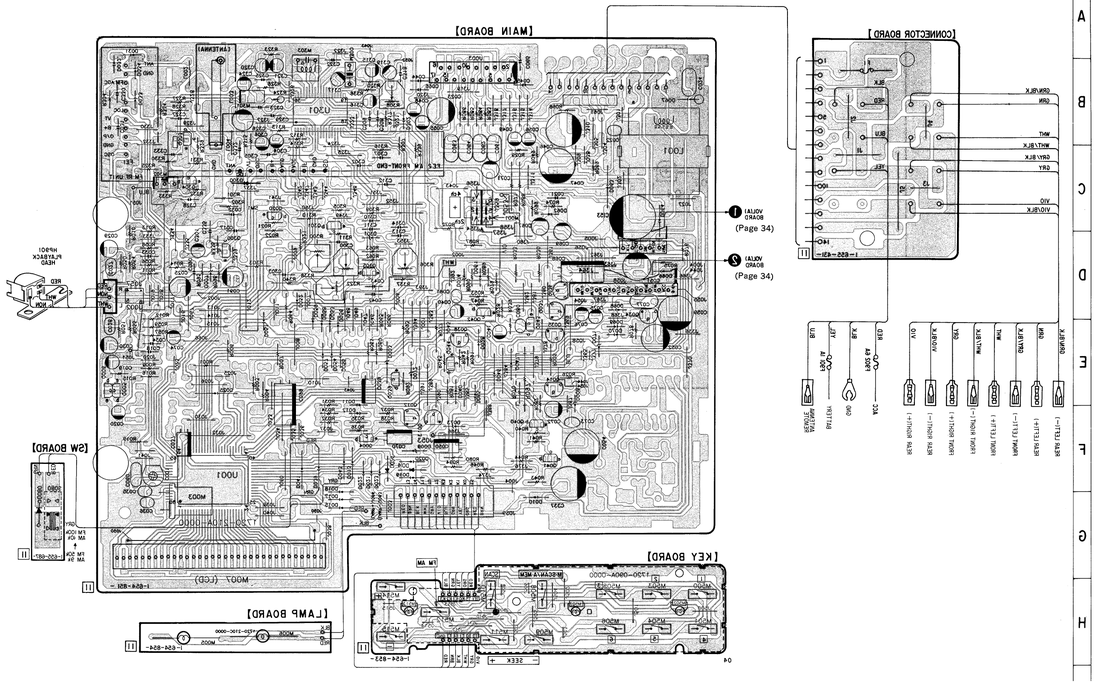
5-2. PRINTED WIRING BOARDS—MAIN SECTION—

• Semiconductor Location

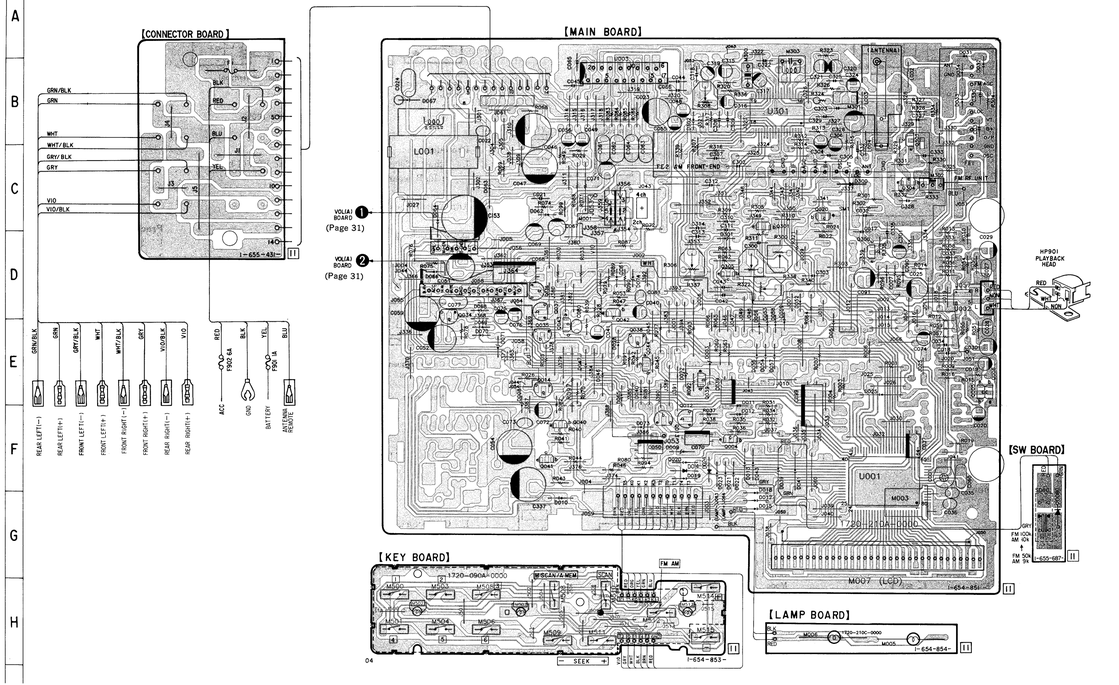
Ref. No.	Location	Ref. No.	Location
D3	E-8	D65	E-7
D7	D-10	D66	D-5
D8	E-6	D67	B-5
D9	F-8	D68	D-6
D10	G-7	D69	E-6
D11	E-9	D70	E-6
D12	F-9	D71	E-6
D13	F-9	D72	E-8
D14	F-8	D73	F-7
D15	G-9	D74	D-7
D17	G-9	D80	G-12
D18	F-9	D300	C-10
D19	F-8	D301	D-8
D20	F-8	D302	B-8
D21	F-8		
D22	F-9	Q4	F-8
D23	F-8	Q5	E-11
D24	F-8	Q6	E-11
D25	E-10	Q12	F-8
D28	E-7	Q13	F-8
D31	A-11	Q14	E-6
D32	B-11	Q20	C-10
D33	B-11	Q34	D-5
D34	B-11	Q35	E-6
D39	F-9	Q36	D-6
D40	E-7	Q37	D-6
D41	F-9	Q38	E-7
D43	F-9	Q39	E-8
D46	E-7	Q40	F-7
D47	E-7	Q41	F-6
D51	D-10	Q42	D-7
D52	D-9	Q43	E-7
D53	E-9	Q44	E-8
D54	E-9	Q300	D-10
D55	E-9	Q301	C-9
D56	E-9	Q303	B-11
D57	E-9	Q304	C-11
D58	E-9	Q305	D-8
D59	D-9		
D61	D-7	U1	F-10
D62	C-6	U2	D-11
D63	C-6	U3	B-7
D64	C-5	U301	B-9

Note :
- ○— : parts extracted from the component side.
- —— : parts extracted from the conductor side.

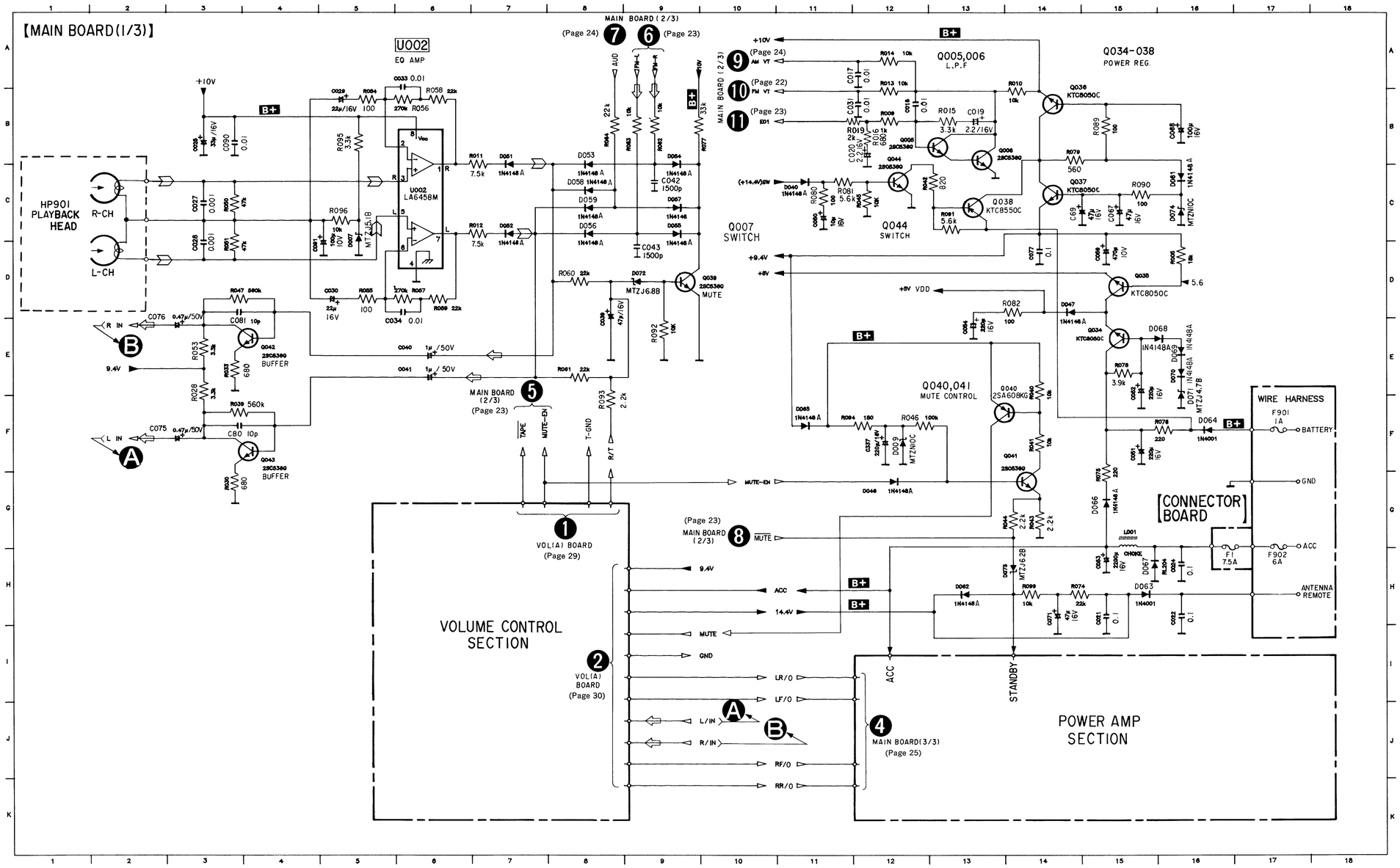
(Conductor Side) Note : Conductor side equal an inversion of component side.



(Component Side)



5-3. SCHEMATIC DIAGRAM—MAIN SECTION (1/3)—



● Voltage Value List

Ref. No. U002	Pin No.	Vdc
	1	4.60
	2	4.60
	3	4.60
	4	0
	5	4.60
	6	4.60
	7	4.60
	8	10.10

Ref. No.	E (Vdc)	C (Vdc)	B (Vdc)
Q005	0.60	1.00	1.00
Q006	0	1.00	0.60
Q007	0	0	0
Q034	5.00	11.70	5.60
Q035	4.50	5.00	5.60
Q036	10.30	14.10	10.30
Q037	9.60	14.10	10.30
Q038	14.10	14.10	2.20
Q039	0	10.30 (0)	0 (0.7)
Q040	13.30	0	13.30
Q041	2.10	2.20	13.30
Q042	1.10	3.80	1.40
Q043	1.10	3.80	1.40
Q044	11.70	2.20	14.40

Note :

- All capacitors are in μF unless otherwise noted. pF : $\mu\mu$F 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- B+ : B+ Line
- Power voltage is dc 14.4V and fed with regulated dc power supply from ACC and BATTERY terminals.
- Voltage is dc with respect to ground under no-signal (detuned) conditions.
- no mark : FM
  ( ) : PB
- Voltages are taken with a VOM (Input Impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : FM
  ⇨ : PB

● **Voltage Value List**

Ref. No.
U301

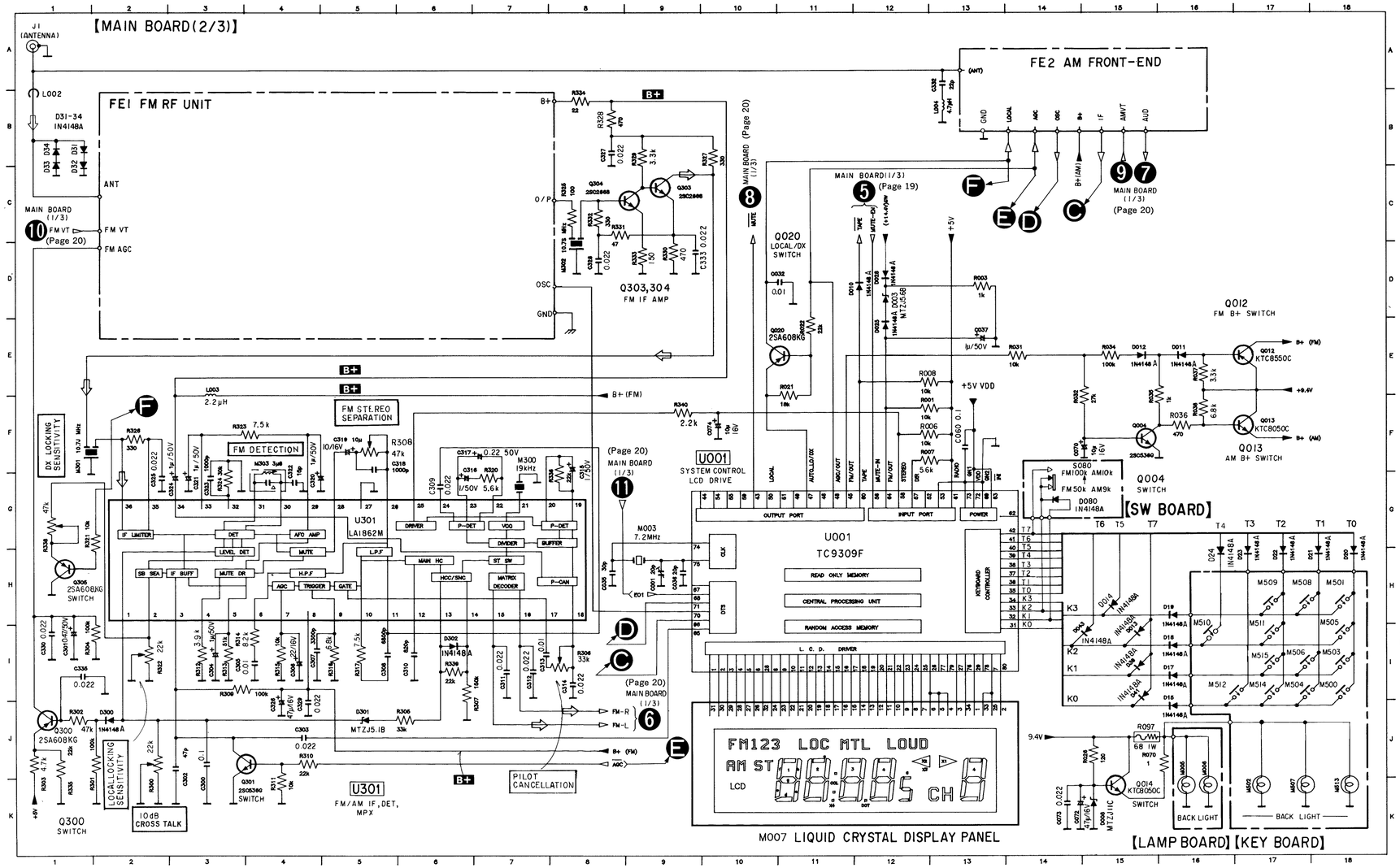
Pin No.	Vdc
1	4.10
2	2.0
3	0
4	1.40
5	0
6	2.80
7	0.40
8	9.60
9	0
10	4.80
11	4.80
12	2.80
13	1.0
14	0.98
15	3.00
16	3.00
17	4.80
18	10.00mV
19	3.40
20	3.40
21	3.70
22	8.00mV
23	3.40
24	4.80
25	4.60
26	4.80
27	0
28	4.00
29	4.80
30	3.90
31	3.90
32	2.00
33	4.80
34	3.40
35	3.70
36	3.70

Ref. No.	E (Vdc)	C (Vdc)	B (Vdc)
Q004	12.00mV	8.70	0.70
Q012	9.60	9.60	8.90
Q013	0.10	9.50	0.70
Q014	11.10	13.90	11.80
Q016	5.00	5.00	4.30
Q020	0	0 (0.5)	2.00 (0.40)
Q300	3.80	3.80	3.80
Q301	0	0 (0.40)	0.60 (0)
Q303	1.00	7.00	1.50
Q304	0.30	1.50	1.00
Q305	0	0	0.50

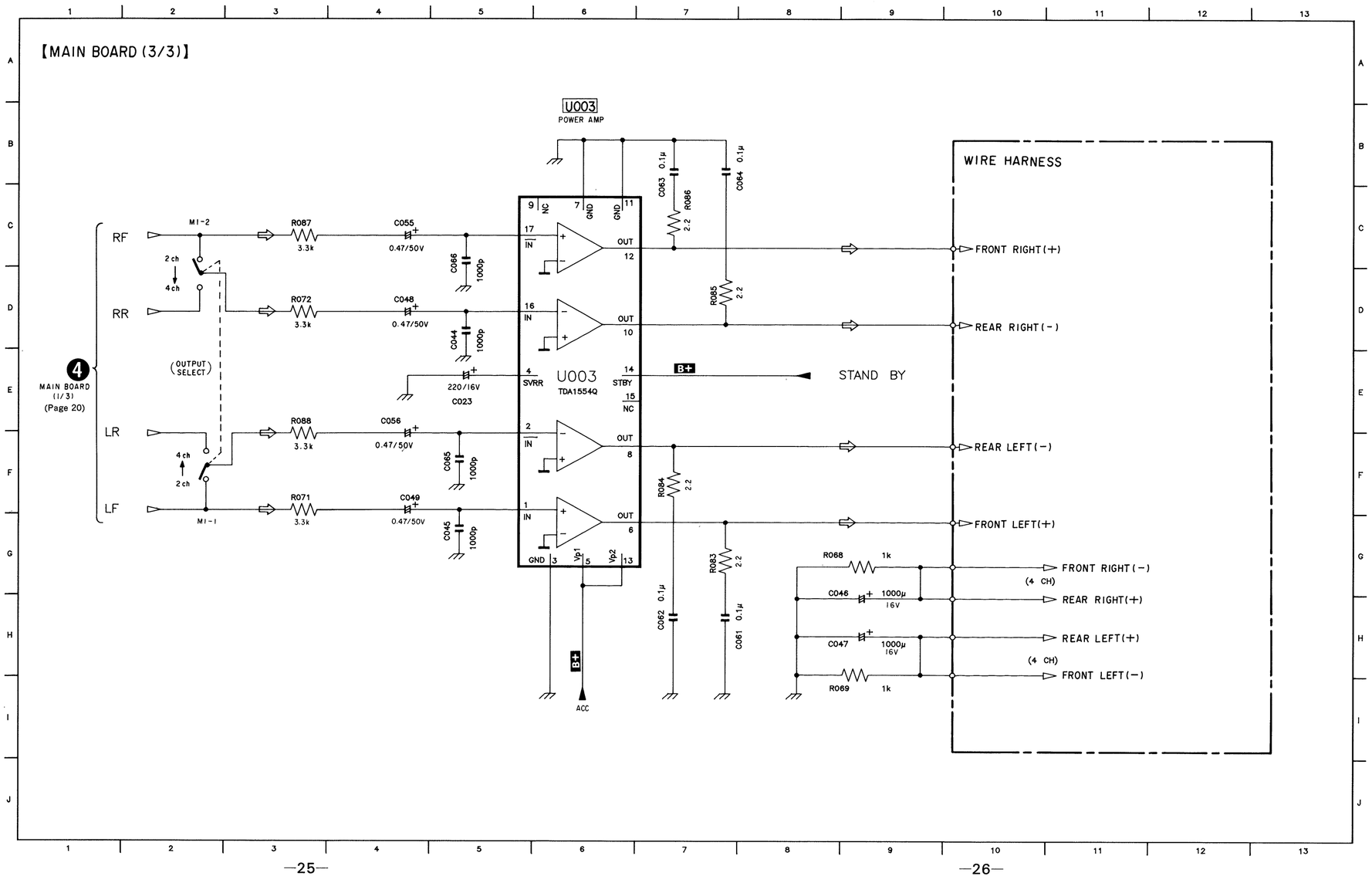
Note :

- All capacitors are in μF unless otherwise noted. pF : $\mu\mu$F 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- △ : internal component.
- : fusible resistor.
- B+ : B+ Line
- : adjustment for repair.
- Power voltage is dc 14.4V and fed with regulated dc power supply from ACC and BATTERY terminals.
- Voltage is dc with respect to ground under no-signal (detuned) conditions.
- no mark : FM
  ( ) : PB
- Voltages are taken with a VOM (Input Impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : FM

5-4. SCHEMATIC DIAGRAM—MAIN SECTION (2/3)—



5-5. SCHEMATIC DIAGRAM—MAIN SECTION (3/3)—



• Voltage Value List

Ref. No.
U003

Pin No.	Vdc
1	2.20
2	2.20
3	0
4	6.90
5	14.20
6	6.90
7	0
8	6.90
9	6.90
10	6.90
11	0
12	6.90
13	14.20
14	8.80
15	0
16	2.20
17	2.20

Note :

- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- B+ : B+ Line
- Power voltage is dc 14.4V and fed with regulated dc power supply from ACC and BATTERY terminals.
- Voltage is dc with respect to ground under no-signal (detund) conditions.
- no mark : FM
- Voltages are taken with a VOM (Input Impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : FM

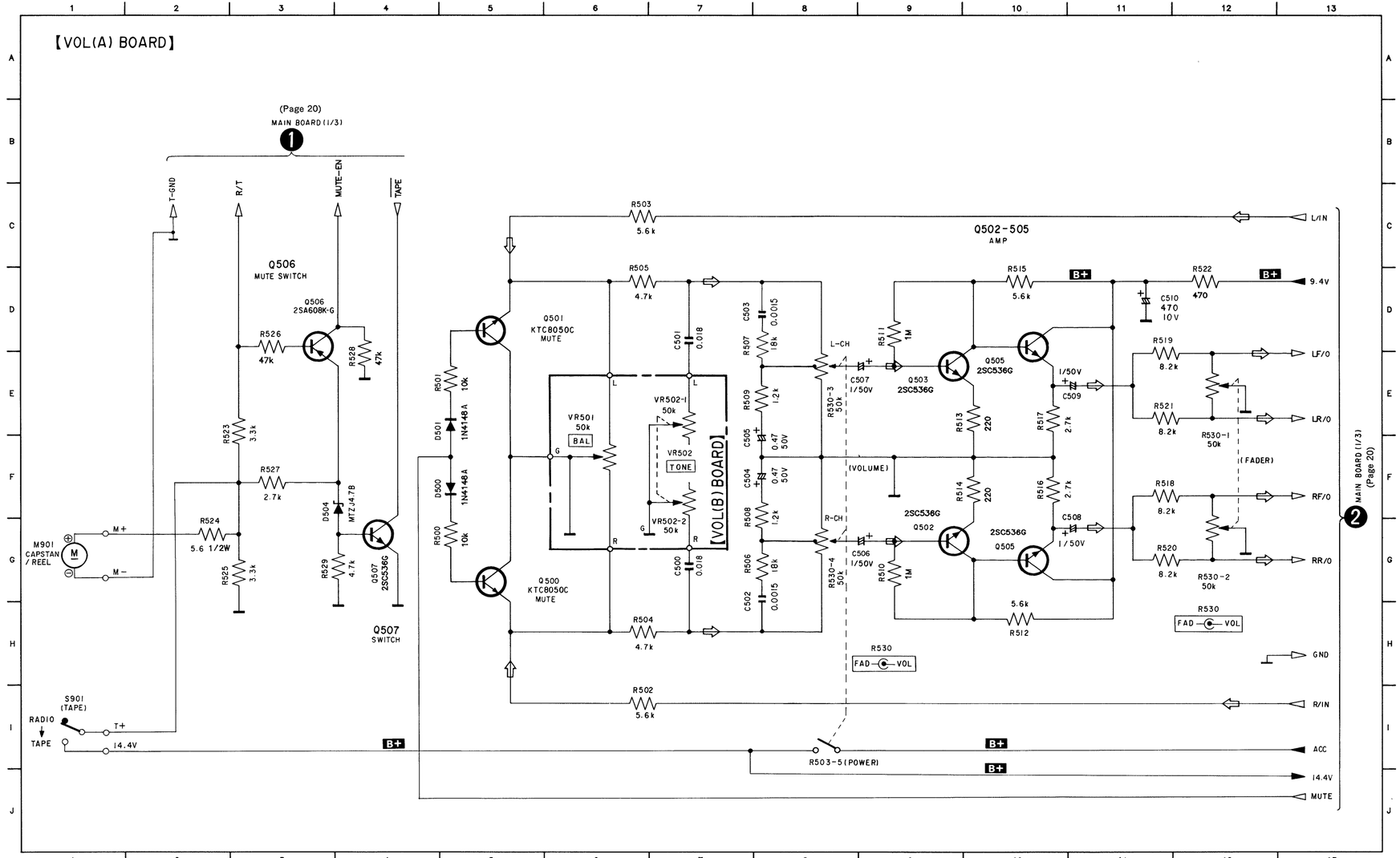
5-6. SCHEMATIC DIAGRAM—VOLUME SECTION—

• Voltage Value List

Ref. No.	E (Vdc)	C (Vdc)	B (Vdc)
Q500	0	0	−0.80
Q501	0	0	−0.80
Q502	0.20	3.00	0.80
Q503	0.20	3.00	0.80
Q504	2.40	7.90	3.20
Q505	2.40	7.90	3.20
Q506	0	0.20 (4.80)	0.50 (4.80)
Q507	0	4.70 (0)	0 (0.80)

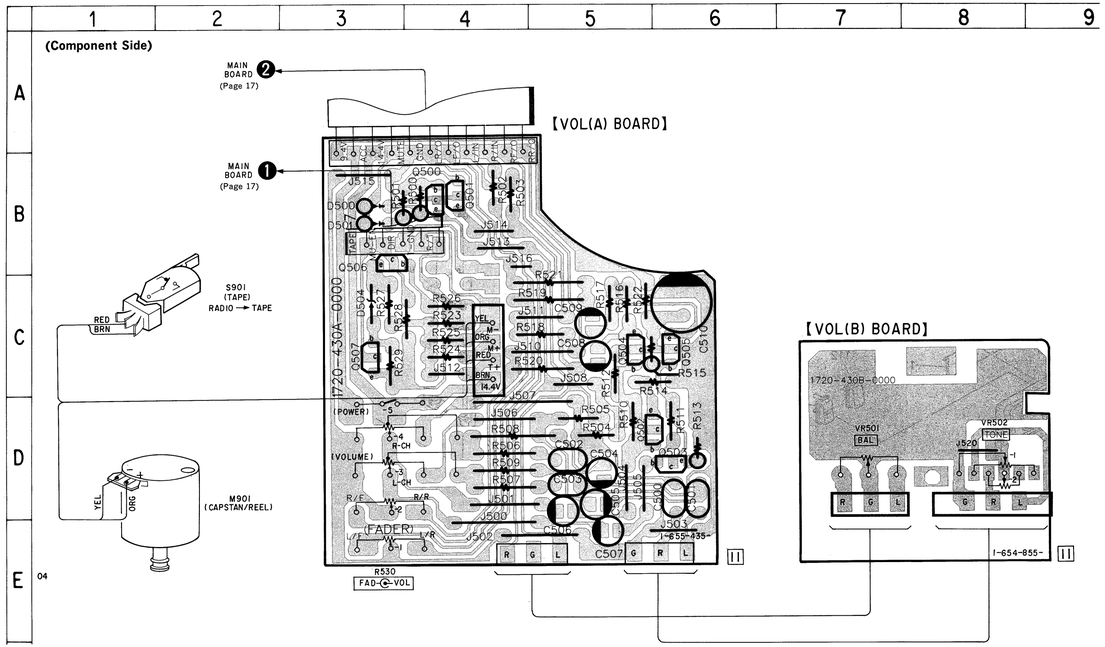
Note :

- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- B+ : B+ Line
- Power voltage is dc 14.4V and fed with regulated dc power supply from ACC and BATTERY terminals.
- Voltage is dc with respect to ground under no-signal (detuned) conditions.
- no mark : FM
- Voltages are taken with a VOM (Input Impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : FM

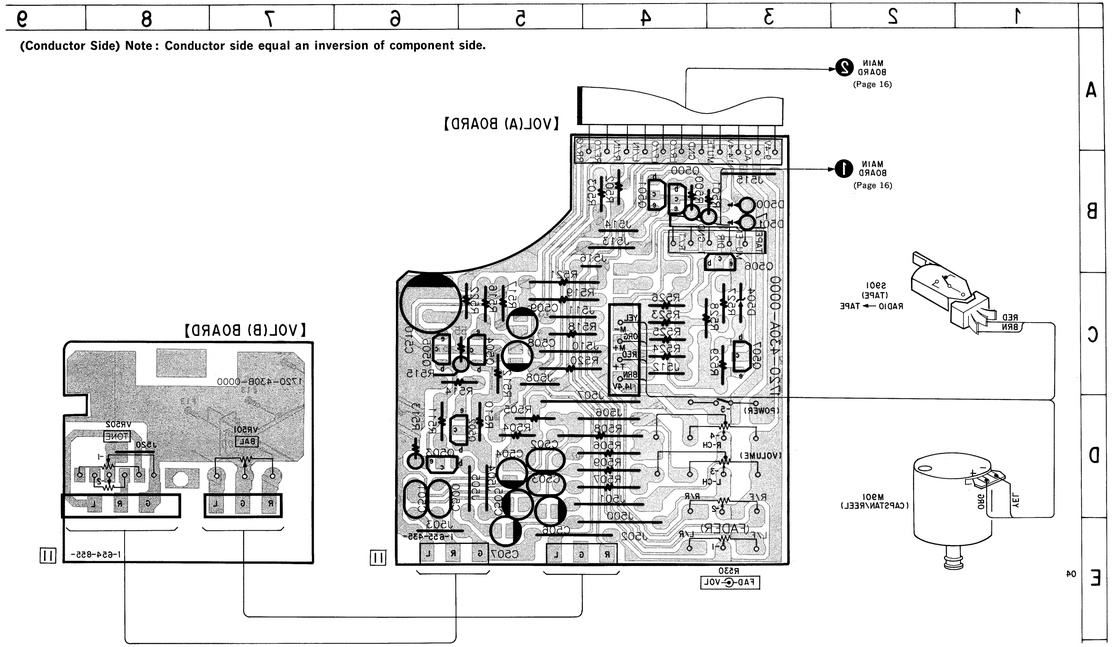


5-7. PRINTED WIRING BOARDS—VOLUME SECTION—

(Component Side)



(Conductor Side) Note : Conductor side equal an inversion of component side.



● Semiconductor Location

Ref. No.	Location
D500	B-3
D501	B-3
D504	C-3
Q500	B-4
Q501	B-4
Q502	D-5
Q503	D-6
Q504	C-5
Q505	C-6
Q506	B-3
Q507	C-3

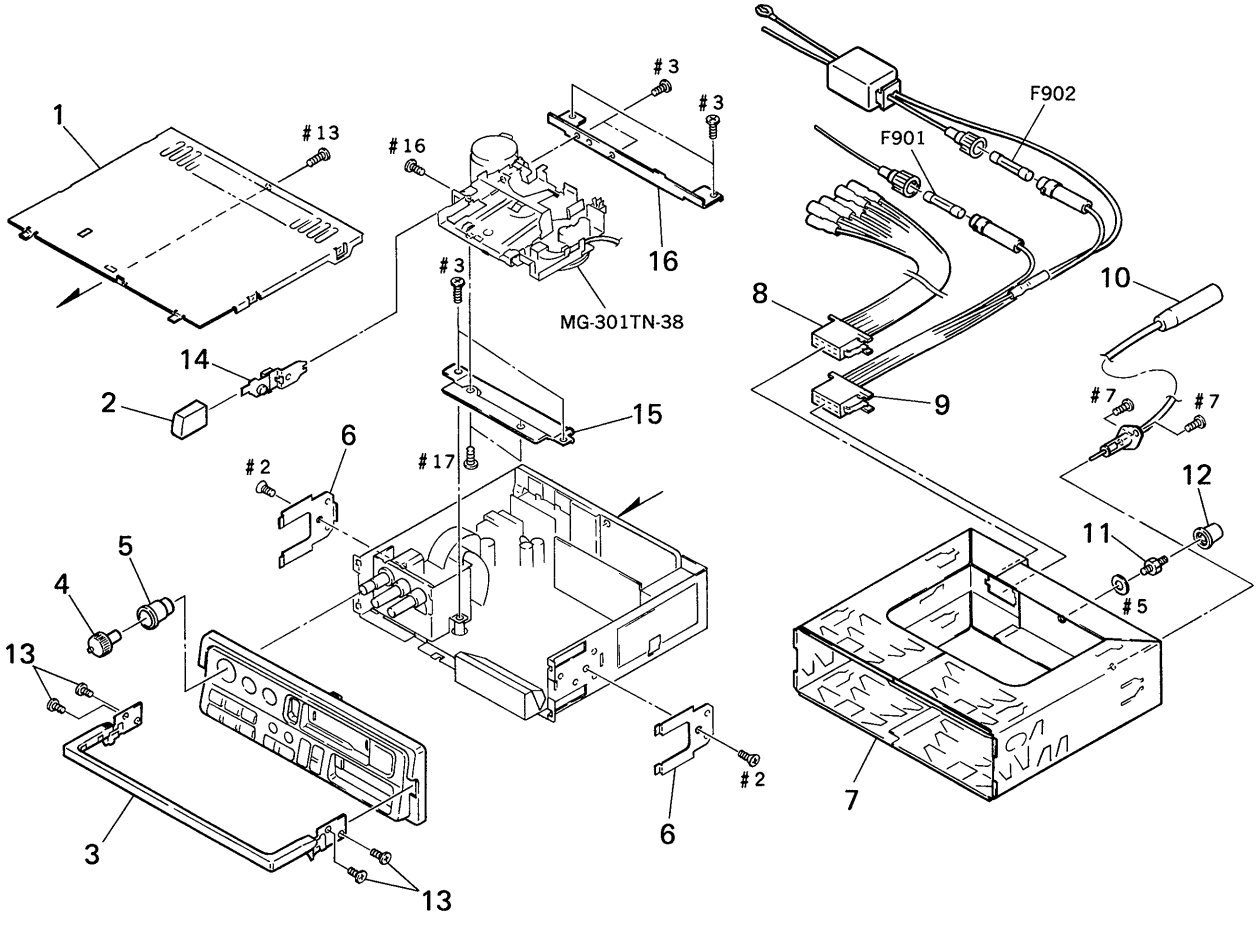
Note :
● ○— : parts extracted from the component side.

SECTION 6
EXPLODED VIEWS

NOTE:

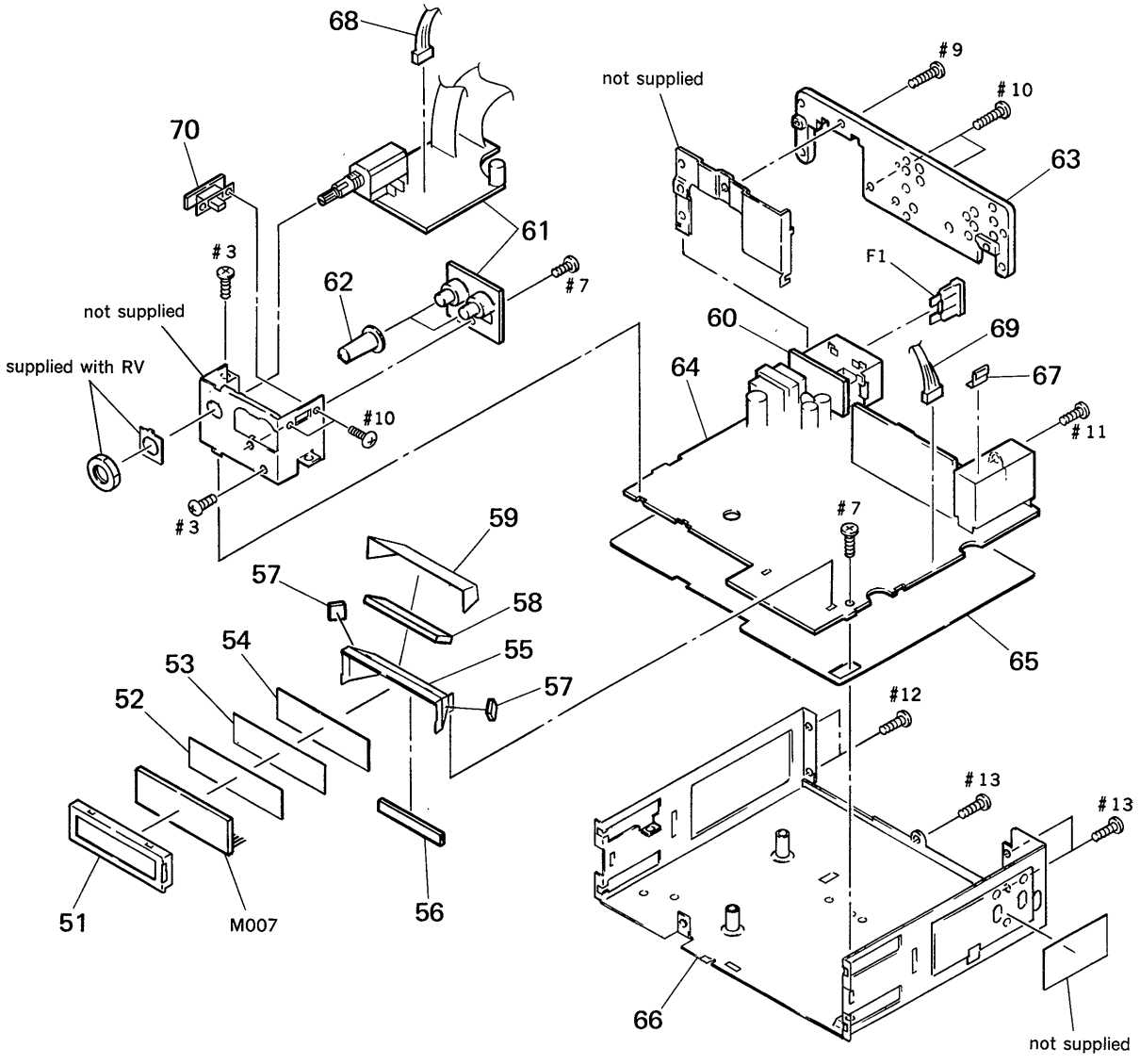
- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
  Example :
  KNOB, BALANCE (WHITE)... (RED)
  ↑ ↑
  Parts Color Cabinet's Color
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.

6-1. COVER SECTION



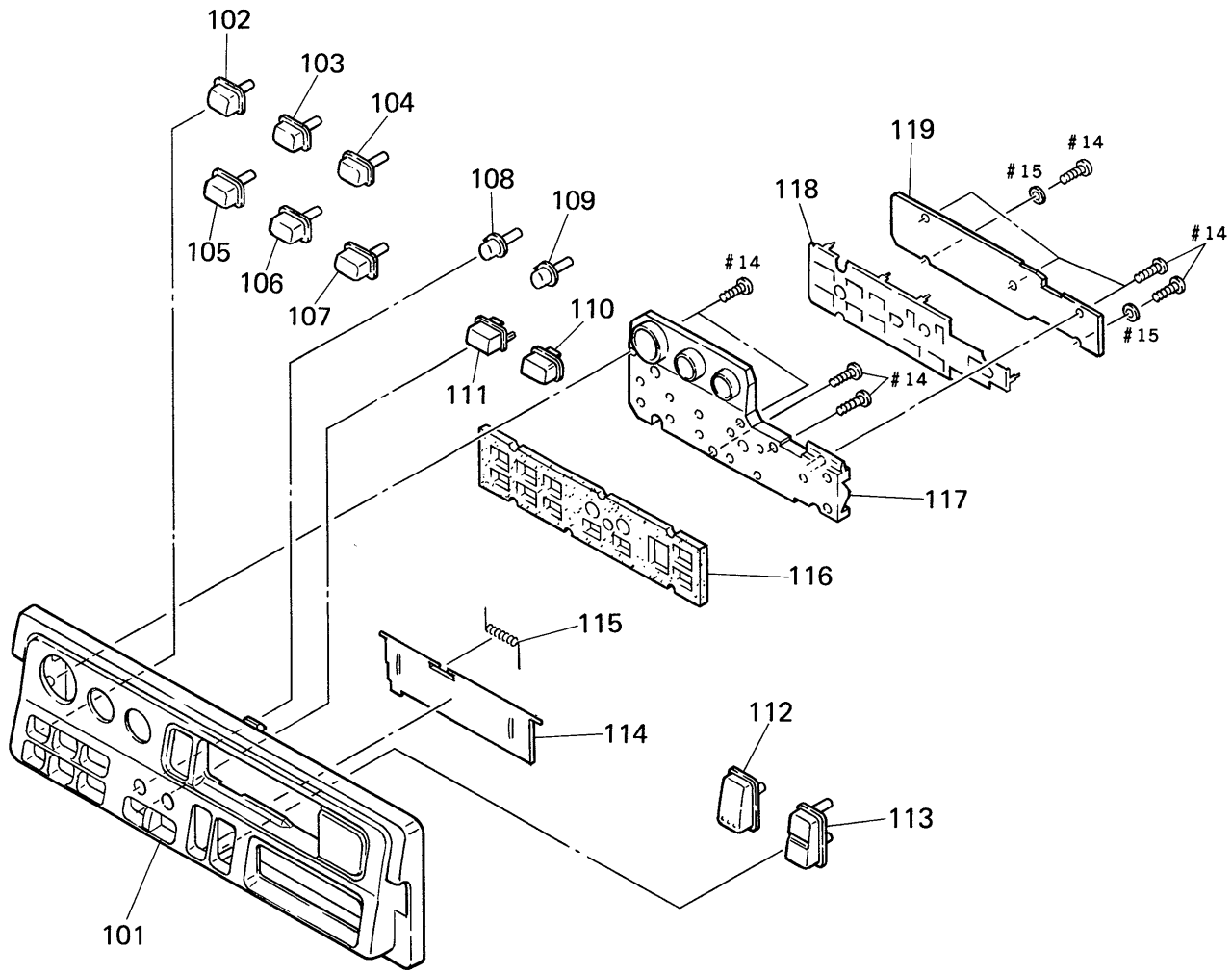
Ref. No.	Part No.	Description	Remark
* 1	3-919-745-01	COVER	
2	3-921-181-01	BUTTON (EJECT)	
3	X-3369-758-1	HANDLE ASSY	
4	3-919-752-01	KNOB (VOL)	
5	3-919-753-01	KNOB (FAD)	
* 6	3-921-170-01	COVER (S)	
7	3-921-173-01	BRACKET	
8	1-769-452-11	CORD (WITH CONNECTOR) (SP)	
9	1-769-396-11	CORD (WITH CONNECTOR)	
10	1-769-453-11	CORD (WITH CONNECTOR) (ANT)	
11	3-919-986-01	BOLT, FITTING	
12	3-919-732-01	BUSHING, RUBBER	
13	3-921-171-01	SCREW (M2.6X4)	
* 14	X-3370-012-1	LEVER ASSY, EJECT	
* 15	3-922-590-01	BRACKET (MD, F)	
* 16	3-921-182-01	BRACKET (MD)	
F901	1-532-360-XX	FUSE (1A/125V)	
F902	1-533-301-11	FUSE (6A/125V)	

6-2. CHASSIS SECTION



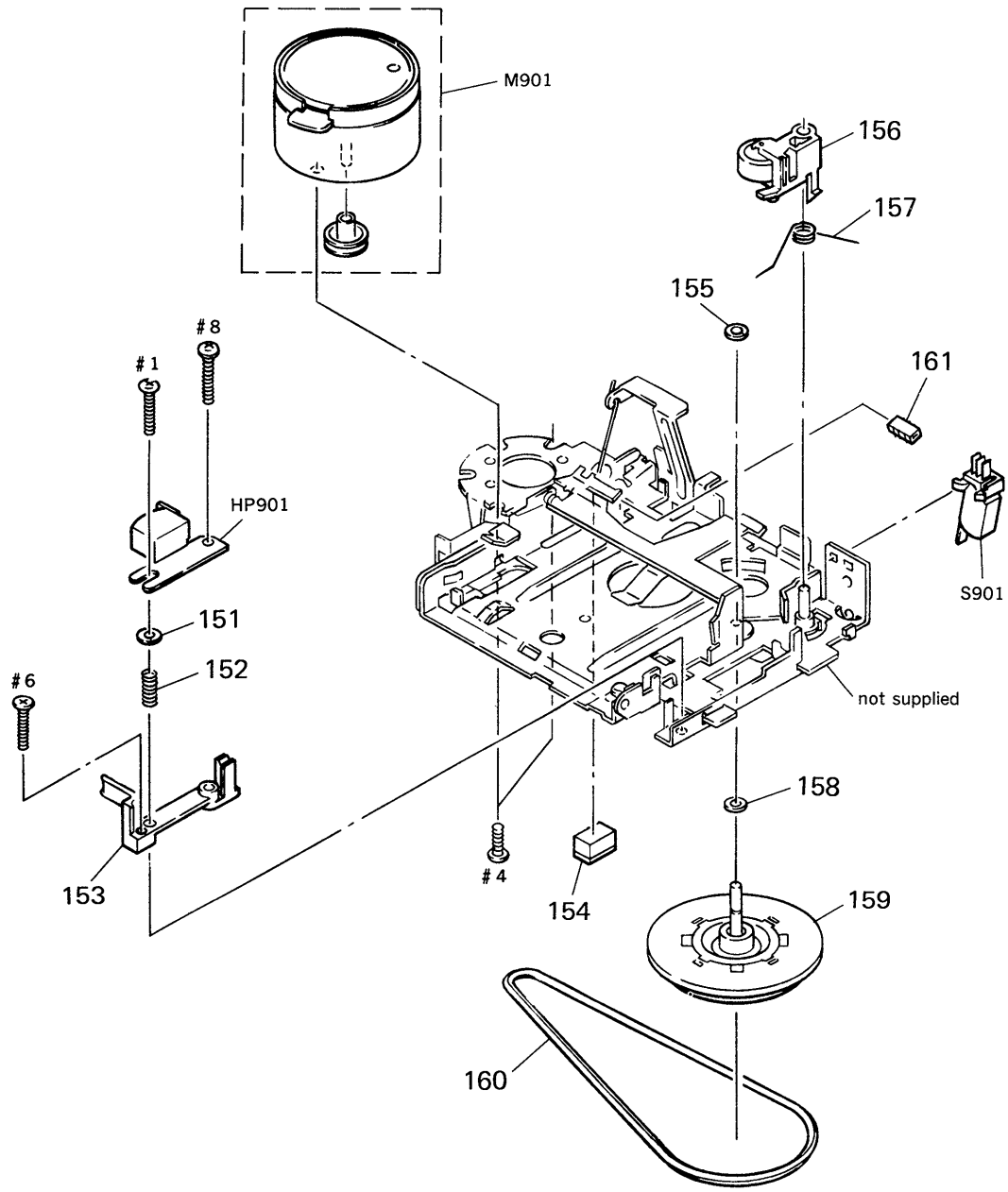
Ref. No.	Part No.	Description	Remark
* 51	3-919-742-01	PLATE (LCD), GROUND	
* 52	3-920-950-01	SHEET (DIFFUSION)	
* 53	3-920-951-01	SHEET (YELLOW)	
* 54	3-920-952-01	SHEET (REFLECTION)	
* 55	3-919-741-01	HOLDER (LCD)	
* 56	1-654-854-11	LAMP BOARD	
* 57	3-920-953-01	CUSHION (LCD 2)	
* 58	3-919-743-01	CUSHION (LCD)	
* 59	3-919-989-01	COVER (LCD)	
* 60	1-655-431-11	CONNECTOR BOARD	
* 61	A-3298-481-A	VOL BOARD, COMPLETE	
62	3-919-754-01	KNOB (TONE)	
* 63	3-919-728-01	HEAT SINK	
* 64	A-3298-482-A	MAIN BOARD, COMPLETE	
* 65	3-920-945-01	INSULATOR	
* 66	X-3369-760-1	CHASSIS ASSY	
67	3-920-946-01	PLATE (TUNER), GROUND	
68	1-769-262-11	CORD (WITH CONNECTOR) 7P	
69	1-769-261-11	CORD (WITH CONNECTOR) 3P	
* 70	1-655-687-11	SW BOARD	
F1	1-533-329-11	FUSE (BLADE TYPE) (AUTO FUSE) 7.5A/32V	
M007	1-810-720-11	DISPLAY PANEL, LIQUID CRYSTAL	

6-3. FRONT PANEL SECTION



Ref. No.	Part No.	Description	Remark
101	3-921-185-01	PANEL, FRONT	
102	3-919-759-01	BUTTON (1)	
103	3-919-760-01	BUTTON (2)	
104	3-919-761-01	BUTTON (3)	
105	3-919-762-01	BUTTON (4)	
106	3-919-763-01	BUTTON (5)	
107	3-919-764-01	BUTTON (6)	
108	3-919-765-01	BUTTON (A. MEM)	
109	3-919-766-01	BUTTON (DSPL)	
110	3-919-767-01	BUTTON (SEEK +)	
111	3-919-768-01	BUTTON (SEEK -)	
112	3-919-769-11	BUTTON (BAND)	
113	3-919-770-01	BUTTON (MANU)	
114	3-925-821-01	DOOR, CASSETTE	
115	3-919-739-01	SPRING (C DOOR)	
* 116	3-919-942-01	CUSHION (BUTTON)	
* 117	3-919-737-01	PLATE, LIGHT GUIDE	
* 118	3-920-955-01	PLATE (KEY), GROUND	
* 119	1-654-853-11	KEY BOARD	

6-4. MECHANISM DECK SECTION (MG-301TN-38)



Ref. No.	Part No.	Description	Remark
151	3-908-273-01	WASHER	
152	3-908-271-01	SPRING, AZIMUTH	
153	3-908-272-01	BASE, HEAD	
154	3-908-274-01	MAT	
155	3-908-278-01	WASHER (CUT), HL	
156	3-908-306-01	PINCH ROLLER ASSY	
157	3-908-275-01	SPRING, PINCH ROLLER	

Ref. No.	Part No.	Description	Remark
158	3-908-277-01	WASHER, HL	
159	3-908-308-01	FLYWHEEL ASSY	
160	3-908-280-01	BELT, MAIN	
161	3-908-281-01	SHOE, BRAKE	
HP901	1-500-090-11	HEAD, MAGNETIC (PLAYBACK)	
M901	X-3367-713-1	MOTOR ASSY (CAPSTAN/REEL)	
S901	1-692-811-11	SWITCH, LEAF (TAPE)	

SECTION 7
ELECTRICAL PARTS LIST

CONNECTOR **KEY** **LAMP** **MAIN**

NOTE:
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL:Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F:nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u:μ, for example:
  uA..: μA.. uPA..: μPA..
  uPB..: μPB.. uPC..: μPC.. uPD..: μPD..
- CAPACITORS
  uF: μF
- COILS
  uH: μH

When indicating parts by reference number, please include the board.

Ref.No.	Part No.	Description	Remark
*	1-655-431-11	CONNECTOR BOARD	
		**********	
	1-770-228-11	CONNECTOR	
**********			
*	1-654-853-11	KEY BOARD	
		*********	
	1-769-263-11	CORD (WITH CONNECTOR) 12P	
*	3-920-955-01	PLATE (KEY), GROUND	
		< SWITCH >	
M500	1-570-204-41	SWITCH, KEY BOARD (1)	
M501	1-570-204-41	SWITCH, KEY BOARD (4)	
M503	1-570-204-41	SWITCH, KEY BOARD (2)	
M504	1-570-204-41	SWITCH, KEY BOARD (5)	
M505	1-570-204-41	SWITCH, KEY BOARD (3)	
M506	1-570-204-41	SWITCH, KEY BOARD (6)	
M508	1-570-204-41	SWITCH, KEY BOARD (M.SCAN/A.MEM)	
M509	1-570-204-41	SWITCH, KEY BOARD (SEEK -)	
M510	1-570-204-41	SWITCH, KEY BOARD (SCAN)	
M511	1-570-204-41	SWITCH, KEY BOARD (SEEK +)	
M512	1-570-204-41	SWITCH, KEY BOARD (FM AM)	
M514	1-570-204-41	SWITCH, KEY BOARD (+)	
M515	1-570-204-41	SWITCH, KEY BOARD (-)	
		< PILOT LAMP >	
M502	1-517-375-11	LAMP, PILOT	
M507	1-517-375-11	LAMP, PILOT	
M513	1-517-375-11	LAMP, PILOT	
**********			
*	1-654-854-11	LAMP BOARD	
		**********	
		< PILOT LAMP >	
M5	1-517-376-11	LAMP, PILOT	
M6	1-517-376-11	LAMP, PILOT	
**********			

Ref.No.	Part No.	Description			Remark
*	A-3298-482-A	MAIN BOARD, COMPLETE			
		**********			
	1-769-264-11	CABLE, FLAT 5P			
	1-769-265-11	CABLE, FLAT 11P			
	1-770-083-11	CONNECTOR 3P			
	1-770-084-11	CONNECTOR 12P			
*	3-919-728-01	HEAT SINK			
*	3-919-741-01	HOLDER (LCD)			
*	3-919-742-01	PLATE (LCD), GROUND			
*	3-919-743-01	CUSHION (LCD)			
*	3-919-987-01	BRACKET (COIL A)			
*	3-919-988-01	BRACKET (COIL B)			
*	3-919-989-01	COVER (LCD)			
*	3-920-950-01	SHEET (DIFFUSION)			
*	3-920-951-01	SHEET (YELLOW)			
*	3-920-952-01	SHEET (REFLECTION)			
	7-621-770-XX	SCREW +PTT 2.6X8 (S)			
	7-621-775-68	SCREW +PTT 2.6X12 (S)			
		< TRIMMER >			
C1	1-141-276-00	CAP, TRIMMER			
		< CAPACITOR >			
C17	1-161-379-00	CERAMIC	0.01uF	20%	25V
C18	1-161-379-00	CERAMIC	0.01uF	20%	25V
C19	1-131-349-00	TANTALUM	2.2uF	10%	35V
C20	1-131-349-00	TANTALUM	2.2uF	10%	35V
C21	1-161-772-11	CERAMIC	0.1uF	10%	25V
C22	1-161-772-11	CERAMIC	0.1uF	10%	25V
C23	1-126-934-11	ELECT	220uF	20%	16V
C24	1-161-772-11	CERAMIC	0.1uF	10%	25V
C25	1-124-242-00	ELECT	33uF	20%	25V
C27	1-108-792-11	MYLAR	0.001uF	5%	50V
C28	1-108-792-11	MYLAR	0.001uF	5%	50V
C29	1-124-234-00	ELECT	22uF	20%	16V
C30	1-124-234-00	ELECT	22uF	20%	16V
C31-34					
	1-161-379-00	CERAMIC	0.01uF	20%	25V
C35	1-102-962-00	CERAMIC	30PF	5%	50V

MAIN

Ref. No.	Part No.	Description			Remark
C36	1-102-958-00	CERAMIC	20PF	5%	50V
C37	1-126-301-11	ELECT	1uF	20%	50V
C39	1-124-589-11	ELECT	47uF	20%	16V
C40	1-126-301-11	ELECT	1uF	20%	50V
C41	1-126-301-11	ELECT	1uF	20%	50V
C42	1-161-053-00	CERAMIC	0.015uF	10%	50V
C43	1-161-053-00	CERAMIC	0.015uF	10%	50V
C44	1-162-294-31	CERAMIC	0.001uF	10%	50V
C45	1-162-294-31	CERAMIC	0.001uF	10%	50V
C46	1-126-952-11	ELECT	1000uF	20%	16V
C47	1-126-952-11	ELECT	1000uF	20%	16V
C48	1-126-159-11	ELECT	0.47uF	20%	50V
C49	1-126-159-11	ELECT	0.47uF	20%	50V
C50	1-126-157-11	ELECT	10uF	20%	16V
C51	1-126-934-11	ELECT	220uF	20%	16V
C52	1-126-934-11	ELECT	220uF	20%	16V
C53	1-126-768-11	ELECT	2200uF	20%	16V
C54	1-126-934-11	ELECT	220uF	20%	16V
C55	1-126-159-11	ELECT	0.47uF	20%	50V
C56	1-126-159-11	ELECT	0.47uF	20%	50V
C59	1-126-925-11	ELECT	470uF	20%	10V
C60	1-161-772-11	CERAMIC	0.1uF	10%	25V
C61-64					
	1-137-399-11	MYLAR	0.1uF	5%	50V
C65	1-162-294-31	CERAMIC	0.001uF	10%	50V
C66	1-162-294-31	CERAMIC	0.001uF	10%	50V
C67	1-124-589-11	ELECT	47uF	20%	16V
C68	1-126-933-11	ELECT	100uF	20%	16V
C69	1-124-589-11	ELECT	47uF	20%	16V
C70	1-126-157-11	ELECT	10uF	20%	16V
C71	1-124-589-11	ELECT	47uF	20%	16V
C72	1-124-589-11	ELECT	47uF	20%	16V
C73	1-161-494-00	CERAMIC	0.022uF		25V
C74	1-126-157-11	ELECT	10uF	20%	16V
C75	1-126-159-11	ELECT	0.47uF	20%	50V
C76	1-126-159-11	ELECT	0.47uF	20%	50V
C77	1-161-772-11	CERAMIC	0.1uF	10%	25V
C80	1-102-947-00	CERAMIC	10PF	5%	50V
C81	1-102-947-00	CERAMIC	10PF	5%	50V
C90	1-161-379-00	CERAMIC	0.01uF	20%	25V
C91	1-124-584-00	ELECT	100uF	20%	10V
C300	1-161-772-11	CERAMIC	0.1uF	10%	25V
C301	1-126-159-11	ELECT	0.47uF	20%	50V
C302	1-101-880-00	CERAMIC	47PF	5%	50V
C303	1-161-055-00	CERAMIC	0.022uF	10%	50V
C304	1-126-301-11	ELECT	1uF	20%	50V
C305	1-161-379-00	CERAMIC	0.01uF	20%	25V
C306	1-124-234-00	ELECT	22uF	20%	16V
C307	1-162-303-11	CERAMIC	0.0033uF	20%	50V

Ref. No.	Part No.	Description			Remark
C308	1-162-305-11	CERAMIC	0.0068uF	20%	25V
C309	1-161-055-00	CERAMIC	0.022uF	10%	50V
C310	1-162-293-31	CERAMIC	820PF	10%	50V
C311	1-161-055-00	CERAMIC	0.022uF	10%	50V
C312	1-161-055-00	CERAMIC	0.022uF	10%	50V
C313	1-161-051-00	CERAMIC	0.01uF	10%	50V
C314	1-161-055-00	CERAMIC	0.022uF	10%	50V
C315	1-126-301-11	ELECT	1uF	20%	50V
C316	1-126-301-11	ELECT	1uF	20%	50V
C317	1-124-464-11	ELECT	0.22uF	20%	50V
C318	1-161-039-00	CERAMIC	0.001uF	10%	50V
C319	1-126-157-11	ELECT	10uF	20%	16V
C320	1-126-301-11	ELECT	1uF	20%	50V
C321	1-126-301-11	ELECT	1uF	20%	50V
C322	1-102-951-00	CERAMIC	15PF	5%	50V
C323	1-162-294-31	CERAMIC	0.001uF	10%	50V
C324	1-126-301-11	ELECT	1uF	20%	50V
C325	1-161-055-00	CERAMIC	0.022uF	10%	50V
C326	1-124-589-11	ELECT	47uF	20%	16V
C327	1-161-055-00	CERAMIC	0.022uF	10%	50V
C328	1-161-494-00	CERAMIC	0.022uF		25V
C329	1-161-055-00	CERAMIC	0.022uF	10%	50V
C330	1-161-494-00	CERAMIC	0.022uF		25V
C332	1-162-207-31	CERAMIC	22PF	5%	50V
C333	1-161-055-00	CERAMIC	0.022uF	10%	50V
C335	1-161-055-00	CERAMIC	0.022uF	10%	50V
C337	1-126-934-11	ELECT	220uF	20%	16V

< DIODE >

D3	8-719-109-89	DIODE	RD5.6ESB2
D7	8-719-109-85	DIODE	RD5.1ES-B2
D8	8-719-110-23	DIODE	RD11ES-B3
D9	8-719-921-77	DIODE	MTZN-10C
D10	8-719-989-90	DIODE	1N4148A
D11	8-719-989-90	DIODE	1N4148A
D12	8-719-989-90	DIODE	1N4148A
D13	8-719-989-90	DIODE	1N4148A
D14	8-719-989-90	DIODE	1N4148A
D15	8-719-989-90	DIODE	1N4148A
D17	8-719-989-90	DIODE	1N4148A
D18	8-719-989-90	DIODE	1N4148A
D19	8-719-989-90	DIODE	1N4148A
D20	8-719-989-90	DIODE	1N4148A
D21	8-719-989-90	DIODE	1N4148A
D22	8-719-989-90	DIODE	1N4148A
D23	8-719-989-90	DIODE	1N4148A
D24	8-719-989-90	DIODE	1N4148A
D25	8-719-989-90	DIODE	1N4148A
D28	8-719-989-90	DIODE	1N4148A

Ref. No.	Part No.	Description	Remark
D31	8-719-989-90	DIODE 1N4148A	
D32	8-719-989-90	DIODE 1N4148A	
D33	8-719-989-90	DIODE 1N4148A	
D34	8-719-989-90	DIODE 1N4148A	
D39	8-719-989-90	DIODE 1N4148A	
D40	8-719-989-90	DIODE 1N4148A	
D41	8-719-989-90	DIODE 1N4148A	
D43	8-719-989-90	DIODE 1N4148A	
D46	8-719-989-90	DIODE 1N4148A	
D47	8-719-989-90	DIODE 1N4148A	
D51	8-719-989-90	DIODE 1N4148A	
D52	8-719-989-90	DIODE 1N4148A	
D53	8-719-989-90	DIODE 1N4148A	
D54	8-719-989-90	DIODE 1N4148A	
D55	8-719-989-90	DIODE 1N4148A	
D56	8-719-989-90	DIODE 1N4148A	
D57	8-719-989-90	DIODE 1N4148A	
D58	8-719-989-90	DIODE 1N4148A	
D59	8-719-989-90	DIODE 1N4148A	
D61	8-719-989-90	DIODE 1N4148A	
D62	8-719-989-90	DIODE 1N4148A	
D63	8-719-200-02	DIODE 10E2	
D64	8-719-200-02	DIODE 10E2	
D65	8-719-989-90	DIODE 1N4148A	
D66	8-719-989-90	DIODE 1N4148A	
D67	1-810-735-11	DIODE RL204	
D68	8-719-989-90	DIODE 1N4148A	
D69	8-719-989-90	DIODE 1N4148A	
D70	8-719-989-90	DIODE 1N4148A	
D71	8-719-010-34	DIODE UZ-4.7BSC	
D72	8-719-109-97	DIODE RD6.8ES-B2	
D73	8-719-109-93	DIODE RD6.2ES-B2	
D74	8-719-921-77	DIODE MTZN-10C	
D300	8-719-989-90	DIODE 1N4148A	
D301	8-719-109-85	DIODE RD5.1ES-B2	
D302	8-719-989-90	DIODE 1N4148A	
		< FRONT END >	
FE1	1-467-982-11	RF UNIT, FM	
FE2	1-693-278-11	FRONT END, AM	
		< JACK >	
J1	1-770-052-11	CONNECTOR, ANT (ANTENNA)	
		< COIL >	
L1	1-411-126-11	COIL, CHOKE	
L2	1-500-176-11	BEAD, FERRITE	
L3	1-410-501-11	INDUCTOR 2.2uH	
L4	1-408-405-00	INDUCTOR 4.7uH	
		< SWITCH >	
M1	1-571-478-11	SWITCH, SLIDE (OUTPUT SELECET)	
		< VIBRATOR >	
M3	1-760-531-11	VIBRATOR, CRYSTAL (7.2MHz)	
M300	1-579-278-11	VIBLATOR, CERAMIC (19kHz)	
		< FILTER >	
M301	1-567-107-00	FILTER, CERAMIC	
M302	1-760-022-11	FILTER, CERAMIC	
		< COIL >	
M303	1-411-127-11	COIL, FM DET	
		< LIQUID CRYSTAL DISPLAY >	
M007	1-810-720-11	DISPLAY PANEL, LIQUID CRYSTAL	
		< TRANSISTOR >	
Q4	1-800-830-11	TRANSISTOR 2SC536-G	
Q5	1-800-830-11	TRANSISTOR 2SC536-G	
Q6	1-800-830-11	TRANSISTOR 2SC536-G	
Q12	8-729-033-73	TRANSISTOR KTC8550-C	
Q13	1-810-731-11	TRANSISTOR KTC8050C	
Q14	1-810-731-11	TRANSISTOR KTC8050C	
Q20	1-806-269-41	TRANSISTOR 2SA608K-G	
Q34	1-810-731-11	TRANSISTOR KTC8050C	
Q35	1-810-731-11	TRANSISTOR KTC8050C	
Q36	1-810-731-11	TRANSISTOR KTC8050C	
Q37	1-810-731-11	TRANSISTOR KTC8050C	
Q38	8-729-033-73	TRANSISTOR KTC8550-C	
Q39	1-800-830-11	TRANSISTOR 2SC536-G	
Q40	1-806-269-41	TRANSISTOR 2SA608K-G	
Q41	1-800-830-11	TRANSISTOR 2SC536-G	
Q42	1-800-830-11	TRANSISTOR 2SC536-G	
Q43	1-800-830-11	TRANSISTOR 2SC536-G	
Q44	1-800-830-11	TRANSISTOR 2SC536-G	
Q300	1-806-269-41	TRANSISTOR 2SA608K-G	
Q301	1-800-830-11	TRANSISTOR 2SC536-G	
Q303	8-729-266-82	TRANSISTOR 2SC2668-O	
Q304	8-729-266-82	TRANSISTOR 2SC2668-O	
Q305	1-806-269-41	TRANSISTOR 2SA608K-G	
		< RESISTOR >	
R1	1-247-855-11	CARBON 10K 5% 1/4W	
R3	1-249-417-11	CARBON 1K 5% 1/4W	

MAIN

Ref. No.	Part No.	Description				Remark
R5	1-249-432-11	CARBON	18K	5%	1/4W	
R6	1-247-855-11	CARBON	10K	5%	1/4W	
R7	1-249-426-11	CARBON	5.6K	5%	1/4W	
R8	1-247-855-11	CARBON	10K	5%	1/4W	
R9	1-249-417-11	CARBON	1K	5%	1/4W	
R10	1-247-855-11	CARBON	10K	5%	1/4W	
R11	1-247-852-11	CARBON	7.5K	5%	1/4W	
R12	1-247-852-11	CARBON	7.5K	5%	1/4W	
R13	1-247-855-11	CARBON	10K	5%	1/4W	
R14	1-247-855-11	CARBON	10K	5%	1/4W	
R15	1-249-423-11	CARBON	3.3K	5%	1/4W	
R16	1-247-827-11	CARBON	680	5%	1/4W	
R19	1-215-233-11	METAL	2K	1%	1W	
R21	1-249-432-11	CARBON	18K	5%	1/4W	
R22	1-249-433-11	CARBON	22K	5%	1/4W	
R26	1-249-406-11	CARBON	120	5%	1/4W	
R28	1-249-423-11	CARBON	3.3K	5%	1/4W	
R30	1-247-827-11	CARBON	680	5%	1/4W	
R31	1-247-855-11	CARBON	10K	5%	1/4W	
R32	1-249-434-11	CARBON	27K	5%	1/4W	
R33	1-247-827-11	CARBON	680	5%	1/4W	
R34	1-247-879-11	CARBON	100K	5%	1/4W	
R35	1-249-417-11	CARBON	1K	5%	1/4W	
R36	1-249-413-11	CARBON	470	5%	1/4W	
R37	1-249-423-11	CARBON	3.3K	5%	1/4W	
R38	1-249-427-11	CARBON	6.8K	5%	1/4W	
R39	1-247-897-11	CARBON	560K	5%	1/4W	
R40	1-247-855-11	CARBON	10K	5%	1/4W	
R41	1-247-855-11	CARBON	10K	5%	1/4W	
R42	1-249-416-11	CARBON	820	5%	1/4W	
R43	1-247-839-11	CARBON	2.2K	5%	1/4W	
R44	1-247-839-11	CARBON	2.2K	5%	1/4W	
R45	1-247-855-11	CARBON	10K	5%	1/4W	
R46	1-247-879-11	CARBON	100K	5%	1/4W	
R47	1-247-897-11	CARBON	560K	5%	1/4W	
R50	1-247-871-11	CARBON	47K	5%	1/4W	
R51	1-247-871-11	CARBON	47K	5%	1/4W	
R53	1-249-423-11	CARBON	3.3K	5%	1/4W	
R54	1-247-807-11	CARBON	100	5%	1/4W	
R55	1-247-807-11	CARBON	100	5%	1/4W	
R56	1-247-889-00	CARBON	270K	5%	1/4W	
R57	1-247-889-00	CARBON	270K	5%	1/4W	
R58-61						
	1-249-433-11	CARBON	22K	5%	1/4W	
R62	1-247-855-11	CARBON	10K	5%	1/4W	
R63	1-247-855-11	CARBON	10K	5%	1/4W	
R64	1-247-867-11	CARBON	22K	5%	1/4W	
R68	1-249-417-11	CARBON	1K	5%	1/4W	
R69	1-249-417-11	CARBON	1K	5%	1/4W	

Ref. No.	Part No.	Description				Remark
R70	1-249-381-11	CARBON	1	5%	1/4W	
R71	1-249-423-11	CARBON	3.3K	5%	1/4W	
R72	1-249-423-11	CARBON	3.3K	5%	1/4W	
R74	1-249-433-11	CARBON	22K	5%	1/4W	
R75	1-249-409-11	CARBON	220	5%	1/4W	
R76	1-249-409-11	CARBON	220	5%	1/4W	
R77	1-249-435-11	CARBON	33K	5%	1/4W	
R78	1-249-424-11	CARBON	3.9K	5%	1/4W	
R79	1-247-825-11	CARBON	560	5%	1/4W	
R80	1-247-807-11	CARBON	100	5%	1/4W	
R81	1-249-426-11	CARBON	5.6K	5%	1/4W	
R82	1-247-807-11	CARBON	100	5%	1/4W	
R83-86						
	1-249-385-11	CARBON	2.2	5%	1/6W	
R87	1-249-423-11	CARBON	3.3K	5%	1/4W	
R88	1-249-423-11	CARBON	3.3K	5%	1/4W	
R89	1-247-807-11	CARBON	100	5%	1/4W	
R90	1-247-807-11	CARBON	100	5%	1/4W	
R91	1-249-426-11	CARBON	5.6K	5%	1/4W	
R92	1-247-855-11	CARBON	10K	5%	1/4W	
R93	1-247-839-11	CARBON	2.2K	5%	1/4W	
R94	1-249-407-11	CARBON	150	5%	1/4W	
R95	1-249-423-11	CARBON	3.3K	5%	1/4W	
R96	1-247-855-11	CARBON	10K	5%	1/4W	
R97	1-217-491-11	FUSIBLE	68	5%	1W	
R99	1-247-855-11	CARBON	10K	5%	1/4W	
R301	1-247-879-11	CARBON	100K	5%	1/4W	
R302	1-247-871-11	CARBON	47K	5%	1/4W	
R303	1-247-847-11	CARBON	4.7K	5%	1/4W	
R304	1-247-879-11	CARBON	100K	5%	1/4W	
R305	1-249-435-11	CARBON	33K	5%	1/4W	
R307	1-247-883-00	CARBON	150K	5%	1/4W	
R309	1-247-879-11	CARBON	100K	5%	1/4W	
R310	1-249-433-11	CARBON	22K	5%	1/4W	
R311	1-247-855-11	CARBON	10K	5%	1/4W	
R312	1-249-424-11	CARBON	3.9K	5%	1/4W	
R313	1-247-872-11	CARBON	51K	5%	1/4W	
R314	1-249-428-11	CARBON	8.2K	5%	1/4W	
R315	1-247-855-11	CARBON	10K	5%	1/4W	
R316	1-249-427-11	CARBON	6.8K	5%	1/4W	
R317	1-247-852-11	CARBON	7.5K	5%	1/4W	
R320	1-249-426-11	CARBON	5.6K	5%	1/4W	
R321	1-247-855-11	CARBON	10K	5%	1/4W	
R323	1-247-852-11	CARBON	7.5K	5%	1/4W	
R324	1-247-866-11	CARBON	30K	5%	1/4W	
R325	1-247-807-11	CARBON	100	5%	1/4W	
R326	1-249-411-11	CARBON	330	5%	1/4W	
R327	1-249-411-11	CARBON	330	5%	1/4W	
R328	1-249-413-11	CARBON	470	5%	1/4W	

Ref. No.	Part No.	Description			Remark
R329	1-249-423-11	CARBON	3.3K	5%	1/4W
R330	1-249-413-11	CARBON	470	5%	1/4W
R331	1-249-401-11	CARBON	47	5%	1/4W
R332	1-249-411-11	CARBON	330	5%	1/4W
R333	1-249-407-11	CARBON	150	5%	1/4W
R334	1-249-397-11	CARBON	22	5%	1/4W
R335	1-249-433-11	CARBON	22K	5%	1/4W
R336	1-249-433-11	CARBON	22K	5%	1/4W
R339	1-249-433-11	CARBON	22K	5%	1/4W
R340	1-247-839-11	CARBON	2.2K	5%	1/4W
		< VARIABLE RESISTOR >			
R300	1-238-601-11	RES, ADJ, CARBON 22K			
R306	1-228-996-00	RES, ADJ, METAL 47K			
R308	1-238-602-11	RES, ADJ, CARBON 47K			
R322	1-238-601-11	RES, ADJ, CARBON 22K			
R338	1-238-602-11	RES, ADJ, CARBON 47K			
		< IC >			
U1	1-810-732-11	IC TC9309F			
U2	1-810-733-11	IC LA6458M			
U3	8-759-062-62	IC TDA1554Q			
U301	1-810-734-11	IC LA1862M			
**********					
*	1-655-687-11	SW BOARD			
		********			
		< DIODE >			
D80	8-719-989-90	DIODE 1N4148A			
		< SWITCH >			
* S80	1-762-293-11	SWITCH (FREQUENCY SELECT)			
**********					
*	A-3298-481-A	VOL BOARD, COMPLETE			
		**********			
	1-770-051-11	CONNECTOR 7P			
		< CAPACITOR >			
C500	1-161-054-00	CERAMIC	0.018uF	5%	25V
C501	1-161-054-00	CERAMIC	0.018uF	5%	25V
C502	1-161-053-00	CERAMIC	0.015uF	10%	50V
C503	1-161-053-00	CERAMIC	0.015uF	10%	50V
C504	1-126-159-11	ELECT	0.47uF	20%	50V
C505	1-126-159-11	ELECT	0.47uF	20%	50V
C506-509					
	1-126-301-11	ELECT	1uF	20%	50V
C510	1-126-925-11	ELECT	470uF	20%	10V

Ref. No.	Part No.	Description			Remark
		< DIODE >			
D500	8-719-989-90	DIODE 1N4148A			
D501	8-719-989-90	DIODE 1N4148A			
D504	8-719-010-34	DIODE UZ-4.7BSC			
		< TRANSISTOR >			
Q500	1-810-731-11	TRANSISTOR KTC8050C			
Q501	1-810-731-11	TRANSISTOR KTC8050C			
Q502	1-800-830-11	TRANSISTOR 2SC536-G			
Q503	1-800-830-11	TRANSISTOR 2SC536-G			
Q504	1-800-830-11	TRANSISTOR 2SC536-G			
Q505	1-800-830-11	TRANSISTOR 2SC536-G			
Q506	1-806-269-41	TRANSISTOR 2SA608K-G			
Q507	1-800-830-11	TRANSISTOR 2SC536-G			
		< RESISTOR >			
R500	1-247-855-11	CARBON	10K	5%	1/4W
R501	1-247-855-11	CARBON	10K	5%	1/4W
R502	1-249-426-11	CARBON	5.6K	5%	1/4W
R503	1-249-426-11	CARBON	5.6K	5%	1/4W
R504	1-247-847-11	CARBON	4.7K	5%	1/4W
R505	1-247-847-11	CARBON	4.7K	5%	1/4W
R506	1-249-432-11	CARBON	18K	5%	1/4W
R507	1-249-432-11	CARBON	18K	5%	1/4W
R508	1-249-418-11	CARBON	1.2K	5%	1/4W
R509	1-249-418-11	CARBON	1.2K	5%	1/4W
R510	1-247-903-00	CARBON	1M	5%	1/4W
R511	1-247-903-00	CARBON	1M	5%	1/4W
R512	1-249-426-11	CARBON	5.6K	5%	1/4W
R513	1-249-409-11	CARBON	220	5%	1/4W
R514	1-249-409-11	CARBON	220	5%	1/4W
R515	1-249-426-11	CARBON	5.6K	5%	1/4W
R516	1-249-422-11	CARBON	2.7K	5%	1/4W
R517	1-249-422-11	CARBON	2.7K	5%	1/4W
R518-521					
	1-249-428-11	CARBON	8.2K	5%	1/4W
R522	1-249-413-11	CARBON	470	5%	1/4W
R523	1-249-423-11	CARBON	3.3K	5%	1/4W
R524	1-249-483-11	CARBON	5.6	5%	1/2W
R525	1-249-423-11	CARBON	3.3K	5%	1/4W
R526	1-247-871-11	CARBON	47K	5%	1/4W
R527	1-249-422-11	CARBON	2.7K	5%	1/4W
R528	1-247-871-11	CARBON	47K	5%	1/4W
R529	1-247-847-11	CARBON	4.7K	5%	1/4W
		< VARIABLE RESISTOR >			
R530	1-223-818-11	RES, VAR (WITH SW) 50KX4 (FAD/VOL)			
VR501	1-223-819-11	RES, VAR (WITH CENTER CLICK) 50K (BAL)			

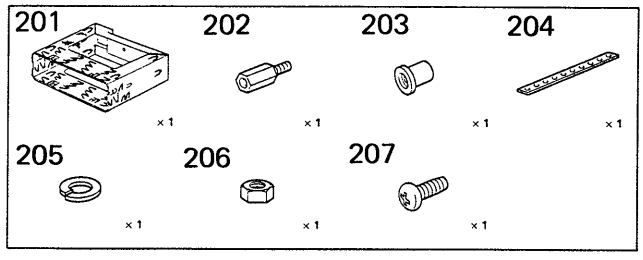
VOL

Ref. No.	Part No.	Description	Remark
VR502	1-223-820-11	RES, VAR (WITH CENTER CLICK) 50KX2 (TONE)	
**********			
		MISCELLANEOUS	
		**********	
8	1-769-452-11	CORD (WITH CONNECTOR) (SP)	
9	1-769-396-11	CORD (WITH CONNECTOR)	
10	1-769-453-11	CORD (WITH CONNECTOR) (ANT)	
68	1-769-262-11	CORD (WITH CONNECTOR) 7P	
69	1-769-261-11	CORD (WITH CONNECTOR) 3P	
F1	1-533-329-11	FUSE (BLADE TYPE) (AUTO FUSE) 7.5A/32V	
F901	1-532-360-XX	FUSE (1A/125V)	
F902	1-533-301-11	FUSE (6A/125V)	
HP901	1-500-090-11	HEAD, MAGNETIC (PLAYBACK)	
M901	X-3367-713-1	MOTOR ASSY (CAPSTAN/REEL)	
S901	1-692-811-11	SWITCH, LEAF (TAPE)	
**********			
		ACCESSORIES & PACKING MATERIALS	
		**********	
	3-759-479-51	MANUAL, INSTRUCTION (ENGLISH, SPANISH, CHINESE, PORTUGUESE)	
	3-759-480-51	MANUAL, INSTRUCTION, INSTALL (ENGLISH, SPANISH, CHINESE, PORTUGUESE)	
**********			

****
HARDWARE LIST
****

#1	7-621-255-65	SCREW +P 2X10
#2	7-621-559-32	SCREW +K 2.6X5
#3	7-621-770-67	SCREW +PTT 2.6X6 (S)
#4	7-621-775-08	SCREW +P 2.6X3
#5	7-688-005-01	W 5, SMALL
#6	7-627-853-57	PRECISION SCREW +P 2X5 TYPE3
#7	7-621-773-86	SCREW +PTT 2.6X4 (S)
#8	7-628-254-05	SCREW +PS 2.6X5
#9	7-621-770-XX	SCREW +PTT 2.6X8 (S)
#10	7-621-775-68	SCREW +PTT 2.6X12 (S)
#11	7-685-133-19	SCREW +P 2.6X6 TYPE2
#12	7-621-773-87	SCREW +PTT 2.6X10 (S)
#13	7-685-134-19	SCREW +P 2.6X8 TYPE2 NON-SLIT
#14	7-685-104-19	SCREW +P 2X6 TYPE2 NON-SLIT
#15	7-623-952-01	WASHER 2.0, FIBER
#16	7-627-556-38	SCREW +P 2.6X4.0
#17	7-682-547-04	SCREW +B 3X6
**********		

Ref. No.	Part No.	Description	Remark
		MOUNTING HARDWARE	
		**********	
201	3-921-173-01	BRACKET	
202	3-919-731-01	BOLT, HEXAGON	
203	3-919-732-01	BUSHING, RUBBER	
204	3-919-733-01	BRACKET	
205	3-919-734-01	WASHER	
206	3-919-941-01	NUT	
207	3-919-735-01	SCREW, +P TAPPING	



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